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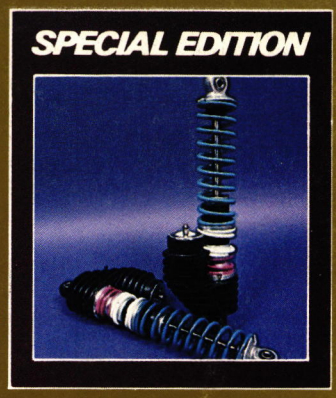
cycle guide

JANUARY 1980



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INTO THE '80s

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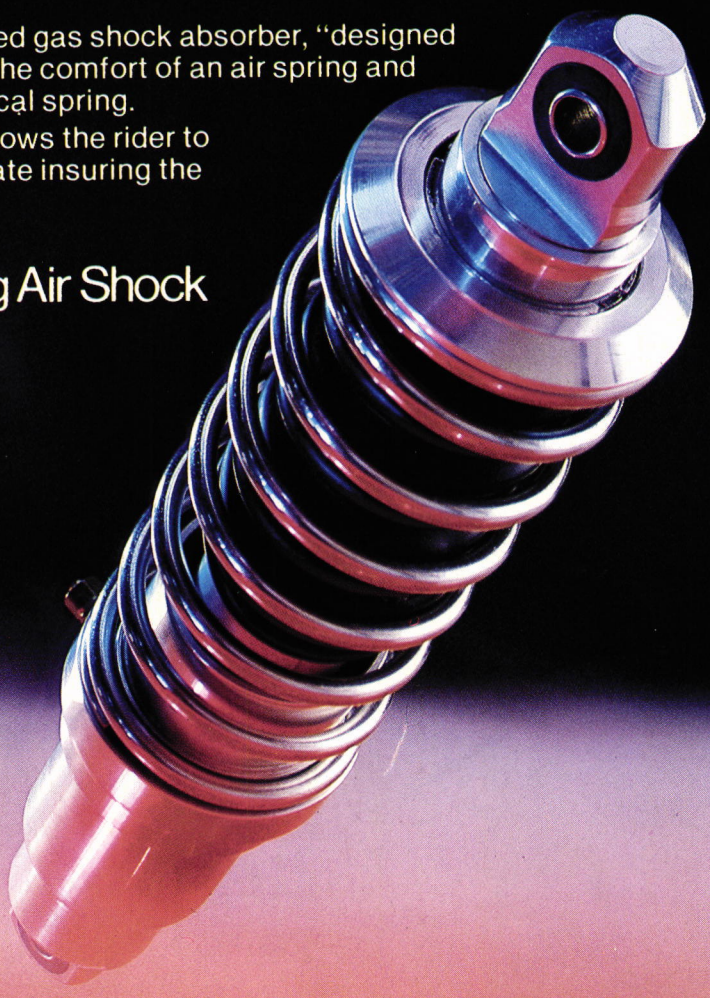

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COVER:
The all-digital dashboard of the future zooms into the Eighties at 8253 rpm, as photographed by Robin Riggs.

QUOTE:
"The XS Eleven lunges down the road like an 1101cc pea that's been launched from the Jolly Green Giant's sling-shot." —**Page 68**

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Did Jack Penton switch to Kawasaki's new KDX175 to finish 2nd?

Jack Penton didn't build his reputation on being second. When he switched to Kawasaki, he knew he was going to ride competition enduro bikes that were built to win. Kawasaki doesn't think there's any other way to build them.

With the introduction of the KDX175, they've truly achieved the state of the art. The engine and the frame are based on the factory KX125 motocross winners, and the suspension is the new Uni-Trak.™ That makes for a double whammy. Power and handling.

Take a look at this power plant. The 173cc two-stroke engine cranks out lots of horsepower and the six-petal reed valve system gives you good, controllable low-end and mid-range power. You get the best use out of this wide powerband through the quick shifting six-speed transmission. Kawasaki's exclusive Electrofusion cylinder resists seizure better than any other production process, and the special radial-fin head helps remove heat when you really start cooking.

Now, how does it handle? The KDX175 is light. Only 214 lbs. And it's narrow. Put them

together and you can throw it around those vicious enduro courses. And the suspension? How does 9.8″ of travel front and rear grab you? And the Uni-Trak is no ordinary suspension. It keeps the center of gravity low, and with only one shock you never have to worry about uneven damping. It'll keep you going straight over whoop-de-doos. Measured against any other form of suspension, it keeps the rear wheel on the ground longer. That's more power to the ground...and that's what makes you win. It is the combination of adjustable air-spring leading axle front forks and the Uni-Trak that gives you the trickest suspension on the market.

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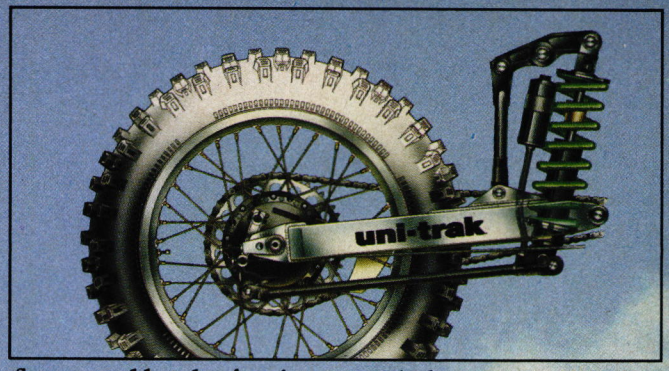

front and back. A tripmeter/odometer, and a first class braking system including a floating rear brake.

If you want another opinion, just ask Jack Penton. He didn't switch to Kawasaki's KDX175 to finish second.

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Cycle Guide's Cycle Guide

OFF-ROAD

MAKE & MODEL	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	HORSEPOWER@RPM*		GEARS
Can-Am 175 Qualifier	Aug. '78	Two-str.	7.7/7.1	234	16.4	9000	6
Can-Am 250 MX-5	Jan. '79	Two-str.	10.8/10.0	218	32.1	8500	5
Honda CR125R	March '79	Two-str.	10.8/10.6	197	19.1	10000	6
Honda CR250R	May '78	Two-str.	11.8/11.0	220	27.7	7500	5
Honda XL185	March '79	Four-str.	7.4/6.75	239	11.2	7500	5
Honda XL250S	Oct. '78	Four-str.	7.8/7.7	262	14.8	8000	5
Honda XR185	March '79	Four-str.	8.0/7.75	221	12.8	10000	6
Honda XR500	May '78	Four-str.	8.5/8.6	273	25.8	6500	5
Husqvarna 125CR-'80	Nov. '79	Two-str.	11.8/11.8	214	18.8	11000	6
Husqvarna 250CR	Dec. '78	Two-str.	11.8/11.8	227	24.3	8500	6
Husqvarna 390CR	Jan. '78	Two-str.	9.6/10.0	234	29.3	6000	6
Husqvarna 250WR	Aug. '79	Two-str.	9.5/9.5	238	21.9	6500	6
Kawasaki KLX250	Sept. '79	Four-str.	9.8/10.5	239	15.2	8500	5
Kawasaki KX125 A5	Oct. '79	Two-str.	9.8/10.0	194	20.0	11000	6
Kawasaki KX250 A5	June '79	Two-str.	11.0/10.9	219	27.9	8000	5
Maico 400 Magnum	July '78	Two-str.	10.0/9.8	226	30.2	6500	5
Montesa Cappra 414 VE	Oct. '79	Two-str.	10.9/10.7	236	28.5	6500	4
Suzuki PE175	Aug. '78	Two-str.	8.8/9.4	216	11.2	9000	6
Suzuki RM125T	Dec. '79	Two-str.	11.2/11.7	200	19.8	10500	6
Suzuki RM250N	May '78	Two-str.	11.2/11.8	218	27.1	8000	5
Suzuki RM400N	Sept. '79	Two-str.	11.2/11.8	229	28.1	7500	5
SWM 175 ISDT	Aug. '78	Two-str.	10.0/10.0	220	17.3	9500	6
SWM 250 MX	Nov. '78	Two-str.	10.0/10.0	216	29.5	9000	5
Yamaha Pro-Tec 600	Nov. '79	Four-str.	10.5/10.1	262	46.2	6500	5
Yamaha YZ125E	Feb. '78	Two-str.	9.3/9.1	198	15.9	11000	6
Yamaha IT175F	Aug. '78	Two-str.	7.2/7.2	217	15.7	9000	6
Yamaha IT250G	Dec. '79	Two-str.	9.8/9.8	244	27.7	8000	6
Yamaha YZ250F	April '79	Two-str.	10.7/10.4	220	28.0	7500	6
Yamaha YZ400F	Feb. '79	Two-str.	10.7/10.4	226	36.9	7000	5

*Horsepower shown is calculated from figures taken at the rear wheel and does not account for transmission losses between the engine and rear wheel. These results may differ from manufacturer's claims or from results obtained using a different dynomometer.

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE, SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R80/7	Oct. '78	2C	13.47/97.90	104	442	38-46	138
BMW R100RS	Dec. '77	2C	13.41/98.03	127	492	38-47	138
BMW R100T (Dressed)	Aug. '79	2C	13.81/92.9	119	521	38-53	142
Ducati Darmah	Sept. '78	90-deg. 2D	13.41/97.50	118	487	25-40	120
Dunstall-Suzuki GS1000 CS	July '79	4A	11.32/117.0	154	488	37-.5	124
H-D CLE Sidecar	Sept. '79	45-deg. 2D	17.60/69.3	91	1036	25-35	181
Honda CX500	Feb. '78	80-deg. 2E	13.86/93.40	106	449	28-50	134
Honda CX500 Custom	Aug. '79	80-deg. 2E	14.12/92.9	102	468	44-51	146
Honda CB650	Feb. '79	4A	13.29/99.9	113	447	37-51	131
Honda CB650 Custom	Dec. '79	4A	13.10/99.8	113	447	44-52	131
Honda CB750F	Oct. '79	4A	12.41/106.8	128	524	31-52	135
Honda CB750K	Nov. '79	4A	12.77/105.8	124	525	38-52	130
Honda GL-1000 (Dressed)	Aug. '79	4C	14.40/90.4	127	704	33-49	141
Honda CBX	Dec. '79	6A	11.86/114.5	130	555	19-36	145
Kawasaki KZ650 Custom	May '79	4A	13.16/100.2	116	483	45-49	125
Kawasaki KZ1000 MkII	April '79	4A	12.06/110.3	130	545	34-46	129
Kawasaki KZ1000 ST	April '79	4A	12.23/111.0	132	574	38-45	130
Kawasaki Z1-R	Nov. '78	4A	12.21/109.9	130	541	31-47	133
Kawasaki KZ1300	March '79	6A	11.79/115.7	140	664	31-39	133
Laverda 1200 Jota	Dec. '78	3A	12.54/105.0	121	518	29-37	145
Suzuki GS425N	March '79	2B	14.59/88.8	NA	382	45-55	NA
Suzuki GS750EC	July '78	4A	12.57/105.6	120	509	31-47	133
Suzuki GS750LN	Sept. '79	4A	12.87/103.5	120	526	41-50	129
Suzuki GS850N	March '79	4A	12.81/104.0	116	566	35-45	153
Suzuki GS1000EC	Nov. '78	4A	12.15/110.9	131	520	31-49	126
Suzuki GS1000LN	June '79	4A	12.39/108.4	130	526	39-50	129
Suzuki GS1000S	July '79	4A	12.43/110.0	132	539	39-45	124
Triumph Bonneville	Dec. '78	2B	13.41/96.2	110	414	42-49	NA
Triumph Bonneville Special	July '79	2B	13.94/96.2	110	411	45-55	175
Yamaha RD400F	June '79	Two-str. 2B	14.16/90.18	98	355	30-43	129
Yamaha SR500E	April '78	1B	14.98/84.20	92	364	49-58	132
Yamaha TZ750E	April '79	Two-str. 4A	11.62/125.5	180	331	NA	NA
Yamaha XS750SF	Sept. '79	3A	13.18/101.2	116	521	40-53	163
Yamaha XS1100F	Nov. '78	4A	12.12/111.9	134	573	29-47	136
Yamaha XS1100SF	Feb. '79	4A	11.96/113.2	136	563	33-36	121

*A-Transverse Vertical, B-Vertical, C-Horizontally Opposed, D-Tandem Vee, E-Vee

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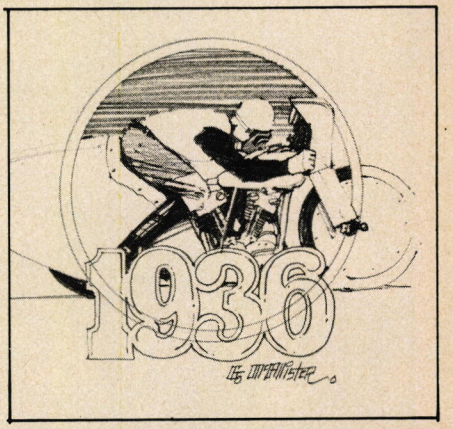

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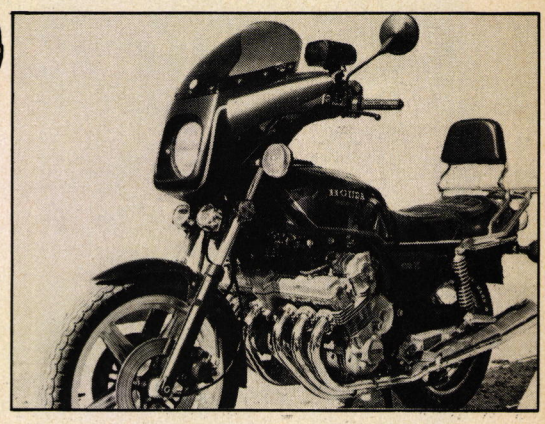

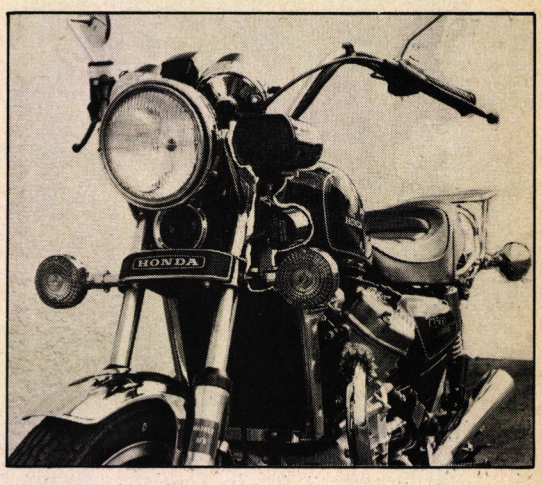

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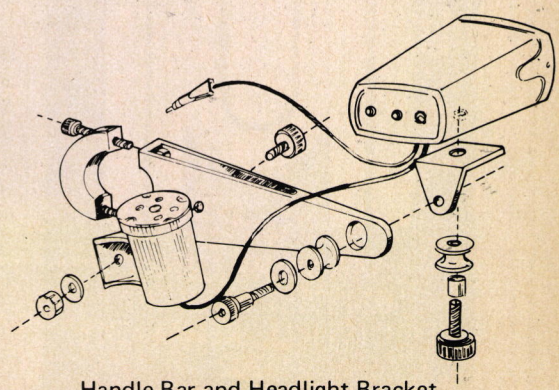

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Letters

A bevy of handling quirks,
Offers of cold cash,
Some damn faint praise

FIGHTIN' WORDS

I picked up your July issue off the newsstand and read the unsigned letter from San Jose, California. This stinkin' bum doesn't know what he's talking about. "All bikers are trash," my foot! This guy is the trash, using the language he used. I hope every biker in California stands up to the "major campaign against motorcycles" that he wrote about. If they don't, it's trash such as this that will have us off the street. That's when I'm fightin' back.

Blair Rowls
Greenville, South Carolina

COMIN' BACK TO HIGHWAY 61

Just a comment on the "Rational Harley." No bike since the '69 Bonneville (including my own MV 750 America) has struck me with quite the impact that this machine did. It is absolutely stunning. Had evolution been allowed to take its course, and had not Harley-Davidson's marketing department decided that a burlesque of the chopper genre would be most lucrative, I'm sure that something like this would be emerging from the Milwaukee plant today. Build it, Harley! Build it and I'll buy it.

Dick Vaughn
Wexford, Pennsylvania

To Harley-Davidson: I have had 106 motorcycles in my 45 years of riding, and only one of them was a Harley. But I would buy a Highway 61 tomorrow if you made it. It would seem that if a cycle publication can do it, you could also. And there are a lot more of us out here than you would imagine.

Bill McMonnies
Gig Harbor, Washington

The Highway 61 is the most complete and best-looking Harley I've ever seen, bar none. I've always hated the raw lines of a Harley, but I guess you either love 'em or you hate 'em. There seems to be little in-between ground.

I sure hope that Harley-Davidson takes a serious look at the beautiful bike *Cycle Guide* and company put together. Harley stands to learn quite a bit.

Yes, I think that I would now buy a Harley if it came as a Highway 61. After all, Harley has always had the best exhaust note in the business, now it has the looks to match. Great work. Your sweat and bloody knuckles went to a very good cause.

Douglas Grindstaff
Fulton, Missouri

I think your Highway 61 is a masterpiece. Congratulations to all involved for performing a job that Harley-Davidson should have been doing all along.

As one who laments the passing of the last "real" 883cc Sportster, I was delighted with your thoughtful and soundly engineered rendition of what still could be a competitive, sporting American motorcycle. With the addition of decent brakes and a little XR750 engine technology, this bike would undoubtedly challenge the Japanese multis at their own game. If only Harley listens.

Dennis L. Merwood
Tacoma, Washington

Boy, oh boy, do I have a good idea! You guys sell me the "Rational Harley," I'll fly out to pick it up, then ride it back to Connecticut to test its durability. That way you will know for sure that the bike you thought was comfortable and could take it had enough stuff for a late-fall cross-country jaunt.

I've just sold a '77 BMW R100S which, despite the investment of many dollars was, relatively speaking, junk. Among other maladies, it had a severe case of oil leakies from both jugs and the rear end. Anyway, I am now looking for another rig (in part so I can recapture my "Sully" plate from the Motor Vehicle Department). I'd buy a stock Harley, but I've had occasion to ride several of them and have concluded that they are at their best standing still, preferably with no one aboard.

But your bike, I love it. C'mon, quote me a price. C'mon, think about taking the money and doing something really daring (a KZ1300 motocrosser?) with it. Whadayasay, huh, huh?

P.S. If you check your subscription records, you will find out that I have been subscriber for several years. You wouldn't let an old friend down, wouldya?

Tom Sullivan
West Hartford, Connecticut

Sorry, Sully, but the bike has to go back to Harley-Davidson "for study." And that just might work out to everyone's benefit—ed.

DUKING IT OUT, ROUND TWO

Ah, the exhilaration of it all!

To be able quite honestly to praise the product of a major advertiser (Honda's 750F) over that of another company (Ducati's 900SS) whose importer buys maybe a dime's worth of ads a year. As the editor of an oil company trade journal, I know it's nice to take advantage of that situation when it arises.

And in your case you've been able to find that the Honda beats out the Ducati on the very parameter—handling—for which the Italian bike is so well known that it can be sold with little or no promotional effort by the importer at all.

But I hate to throw cold water over all of this. How long will the Honda's crisp manners hold up? After seven years and 20,000-plus miles my Duke GT is still imperturbably dive-bombing through the turns without a hint of wobble (al-

beit with the aid of substitute shocks and wider clubman bars, as you properly suggest). It'll continue to do that as long as I keep it (forever) because its narrow, longitudinal engine and similar frame are perfectly mated to each other. And as a GT, it has the frame and slightly wider seat to make it, like the Honda, a perfectly adequate short- to mid-range tourer as well as an apex-clipper.

But the Honda's wide, high engine is perpetually at war with its chassis, exerting severe horizontal stresses on the members struggling valiantly to hold it in place on every turn. No matter how well the frame is cross-braced and gussetted, as the miles creep up, the strains are bound to start telling, and the Honda's terrific out-of-the-crate handling will start to go the way of its plastic fenders.

Douglas Gill
Denver, Colorado

I recently read your article on the best handling superbike. My first reaction was shocked disbelief. Then I started to tear apart the article. There were no facts in it, only opinions and qualitative judgments. Then I realized that it does not matter whether the Honda handles better. It is still not in the Ducati's class.

What sets Ducati, BMW, Triumph and a very few other bikes apart is the loyalty their owners have for them. Why is it that you don't see any old Hondas? Maybe because there is nothing timeless in them, so they can't withstand time. As soon as a better bike comes along, their owners throw away the old ones.

Maybe a better bike has come along. It will pass. The Ducati won't.

P.S. I am not an old man who used to ride a Harley 50 years ago and who now drives a Caddy. I am a 17-year-old engineering student at the University of Pennsylvania.

Edward M. Weinstein
Philadelphia, Pennsylvania

Fortunately for you, that too will pass—ed.

I very much enjoyed the shootout between the Ducati and the Honda Four in the October issue. Japanese machinery has been left banging at the door for too long with bikes that perhaps deserved better treatment, at least in some cases. You've now given them the five-star rating they surely must lust after. Having ridden both bikes covered, I agree wholeheartedly. There's no question that I'm a Jap fan, but I also rankle at the double standard often used to retain a fast-disappearing line between European and Japanese machinery in the handling area. I'm pleased that an honest appraisal from your publication elevates the Honda 750 to a position at least near the throne.

Joe Bolger
Barre, Massachusetts

It's heartening to see Honda focus more effort on handling. As an eight-tenths (or thereabouts) rider, I'll stay with my Ducati. But who knows, I might be ready for a ten-tenths in the next decade, and Honda might unleash a tandem-vee on us. If it's in a bulletproof frame, I might trade. If not, I'll just change my shocks and wait.

Dave Gregg
Iowa City, Iowa

FROM THE SUBLIME TO THE ABSURD

Someone must set Mr. Setright right regarding classical logic. "Reductio ad adsurdum" is indeed Latin for "reduce to absurdity." But beyond that, the philosophy lesson wasn't even close. The reductio ad adsurdum is a method of proving a proposition, not explaining one.

Setright used "absurd" to mean "extreme," as in "absurdly simple" or "absurdly expensive." Classical logicians, however, regard "absurd" as meaning clearly false, such as a contradiction in terms.

To prove a proposition true by the reductio ad adsurdum, one takes the opposite of the proposition and presumes, for the sake of argument, it to be true.

If the logical contradiction of a proposition can be shown to have absurd or self-contradictory consequences, the proposition may be assumed to be true.

I hope you were taking notes. There will be a quiz tomorrow.

John A. Anderson
Charleston, West Virginia

Oh, sorry. Was that the final bell?—ed. •

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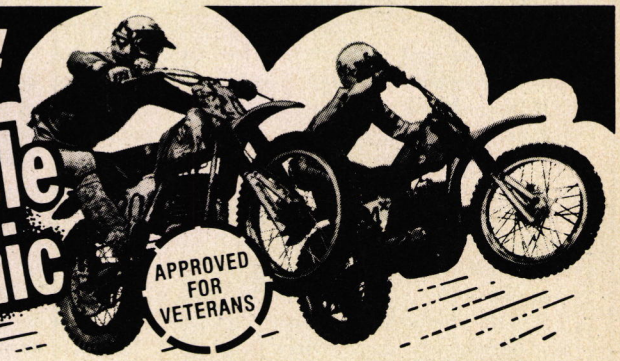

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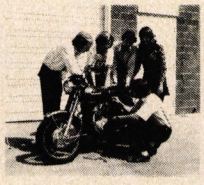

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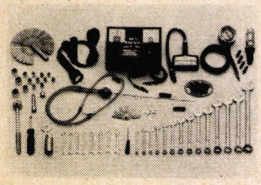

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Editorial

No-Fault Madness

"Make 'em pay! Make 'em pay! Make 'em pay!"

• Say you're a racer. Doesn't matter what kind—motocross, roadrace, flattrack. Say you're just an aspiring guy on a fast motorcycle in a fast crowd. Every Sunday you climb into those scuffed-up leathers, slip on your helmet and put it all on the line for a moto or a semi or a GP heat. For twenty or forty or eighty minutes every Sunday you push the outside of your own personal envelope, reaching for the Edge, trying to claw past all the other guys in scuffed-up leathers. Sometimes you win, sometimes you lose and sometimes you wake up in the hospital. Par for the course. After all, you're a racer.

Now say that one time, one particularly bad Sunday, you wake up in the hospital and they tell you you'll never get on a bike again. In fact, they tell you, you're not even going to walk again. And something inside snaps, like the fragile bones of a tiny, delicate bird. The pain, the fury of not only not winning the race but also not even *finishing* both pale before the emotion that engulfs you when that little bird dies inside. When the hope you've nurtured all those years is snuffed out.

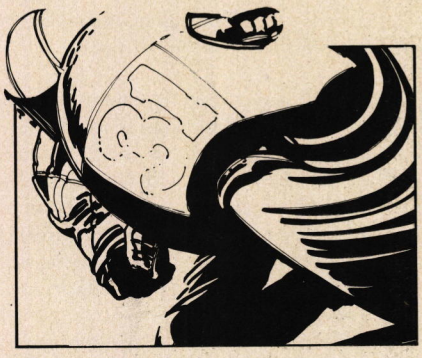
Say you're that racer, in that hospital bed. In times past, you might have taken it all on yourself. But things have changed. Oh boy, have they changed.

Today, there's a man next to you the moment you wake up. He's not a doctor. He's a lawyer. A man your parents might have hired. Or your wife, maybe. And his job is to make someone pay for your condition.

*An*yone.

He's the product liability man. A specialist. Someone who can convince judge and jury that when you went over the bars on Turn Four, it wasn't just your screw-up, it was Them. The manufacturer of the bike. The tire people. The shock people. The throttle people. Them, not you.

It used to be, you see, that the doctrine of acceptable—and accepted—risk dominated potential product liability lawsuits pertaining to risk-laden activities like racing . You can think of it as common sense: If a guy's crazy enough to go racing, all bets are off. It's his racer, his race, his problem. No more. Now, the thinking that has made manufacturing *anything* into a dangerous enterprise has begun to seep into racing. Lawyers are confronting juries with lurid stories of flaming crashes and demanding that Something Be Done. Preferably Something with dollar signs.



Jon S. McKibben is an engineer, and a good one, from what industry people say. He runs a company called McKibben Engineering, and he addressed this mania for Making Them Pay in a spine-chilling presentation at the annual Society of Automotive Engineers conference at Cobo Hall in Detroit early in 1979. His paper—"Product Liability and the Motorcycle Designer"—delineates, in its eight pages, the changed priorities pressing upon an engineer charged with creating a new product or improving an old one. "Today's motorcycle designer," he says, "must be part engineer, part fortune teller, part sociologist and part lawyer." All because the old way of designing things—of seeing simply the marketing and engineering aspects—has been shattered by increasingly liberal interpretations of product liability law.

If you didn't know it before you read McKibben's paper, he makes it clear exactly how that liberalization affects everything. A landmark liability case (Darrell Francis Ault v. International Harvester Company, 1974) broke the old traditions, in which the burden of proof of product failure lay upon the injured party; after Ault, says McKibben, a doctrine known as "subsequent change" has become the weapon whereby huge out-of-court settlements and enormous punitive fees have been levied against manufacturers. It works this way, says McKibben: "If a 1978 Whizbang 750, with three hydraulic disc brakes and proportioned, interconnected controls for front and rear braking, can decelerate faster and with simpler rider control requirements that the 1968 Wheezebank 750, it is possible, under Ault, for the court to consider whether the 1968 Wheezebank 750 should have had the braking system fitted to the newer model."

In other words, how come you vicious, profiteering capitalists didn't make the '68 750 as good as the '78 750?

Think about that for a minute. It could be the most absurd thing you've ever contemplated. What judge and jury are saying is that ten years of technical advancements, of manufacturing and design improvement, are no defense. That, since the same laws of physics apply now as in '68, the engineers *should have* made the old bike "as good" as the new bike.

The real root of this madness lies not in our products, but in ourselves. We now seem as a nation to expect the words "personal responsibility" to go away. We no longer believe, as a society, that an individual is accountable for his own actions. It's always *Them*—the Feds, the politicians, the doctors, the teachers, and yes, even the lawyers—who are at fault.

A highly placed official in the California state government has privately admitted that the single greatest threat he sees to the country isn't nuclear obliteration or even inflation, but this collective refusal to deal with the consequences of our own acts. He calls it the "no-fault society," and he sees a particularly vicious circle of anarchy and fear resulting from it.

If you consider all this to be something that doesn't touch you because you, as an enthusiast, like to think of yourself as aware enough to know when something is your fault or someone else's, you're wrong. Listen again to Jon McKibben: ". . . the law has changed and probably will continue to change as it attempts to create a socialistic environment where the loss of an individual is distributed to society through payment from manufacturers. This loss will then be passed back to society through increased cost of the manufacturer's product, thereby spreading individual losses to the general public through avenues other than welfare or public insurance." Which means that when someone, *anyone*, wins a subsequent-change case, you pay.

Obviously, manufacturers must be held liable for their products. But the consumer must also bear responsibility, because the moment he buys something, it effectively ceases to be under the control of the manufacturer. The question the lawyers are asking is this: Shouldn't the builder build so well that his product won't *ever* injure anyone? And if he improves the product, shouldn't he be held responsible for previous, unimproved versions?

The answer may be clear to you. Until, say, the day you're in that hospital bed and the hope has gone, to be replaced by anger and the words of the man next to your bed. The man who is not a doctor.

—Steve Thompson

"There is nothing else quite like it ...on earth."

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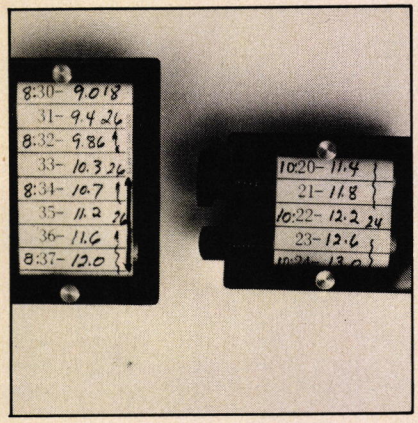
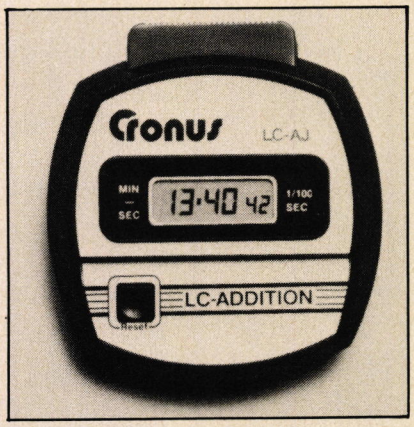
Motomart

Some pleasant surprises for the rider who thought he had everything

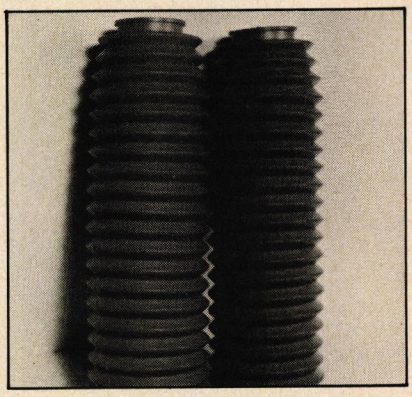
Enduring It Easier: Clairemont Cycle Supply has added two models of enduro route-chart holders to its line of off-road products. The holders are made of ABS plastic, and route-chart paper and a speed conversion chart are included. Model B is 3″ x 4″ and sells for $16.95. Or, if you *really* need to see where you're going, choose the larger Model A for a dollar more. Contact Clairemont Cycle Supply, Dept. CG, at 4461 Clairemont Mesa Blvd., San Diego, California 92117. You also can call (714) 272-1162 or 275-1823.

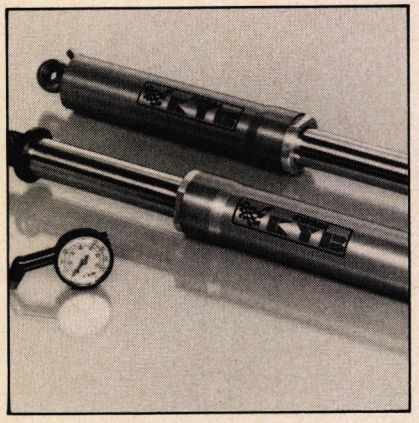




Every Second Counts: If your time is of the essence you might need an LCD electronic digital stopwatch by Cronus. The two-ounce timers come complete with batteries and neck rope (great for hanging time-keepers when you lose). The liquid-crystal display reads out up to one hour, with automatic rollover at 59:59:99. Each stopwatch has a one-year limited warranty and replaceable button-cell batteries. For timely details write Cronus Precision Products, Inc., Dept. CG, 2895 Northwestern Parkway, Santa Clara, California 95051.

Keeping Your Legs Clean: These may look like webbed slinkies but they're actually the fork boots from Pro-Tec. They're made of ozone-resistant silicone-neoprene, so what you breathe shouldn't corrode them—or your forks. These boots are available in a variety of colors, and in different sizes to fit minibikes, conventional dirt bikes and long-travel motocrossers. A pair of them lists for $7.95. For more information on how to order the fork boots, contact Pro-Tec, Inc., Dept. CG, 282 Gemini, Brea, California 92621; or call (714) 738-0631 or (213) 697-6759.





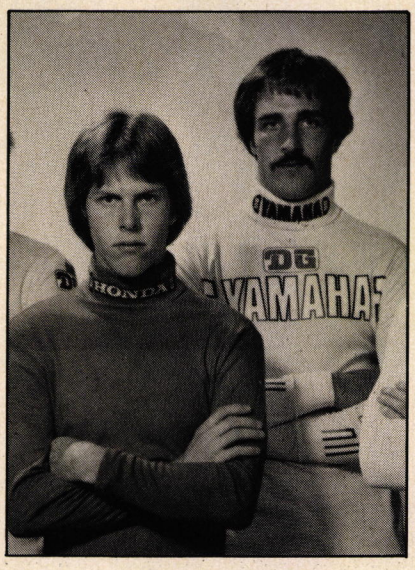
Shocks From DG: Kayaba's all new F-series air shocks are in stock at DG Performance Specialties. These shocks are rebuildable and have three external damping adjustments for easy set-up for your riding style. The shocks run a single-stage air system and internal spring, and are available in the following lengths: 15.5″, 16.7″ and 17.5″. An owners manual is included with the shocks, which retail for $285 per pair. These Kayaba shocks are available at motorcycle and accessory stores, or through DG Performance, Dept. CG, 1170 Van Horne Rd., Anaheim, California 92806. The phone number is (714) 630-5471.

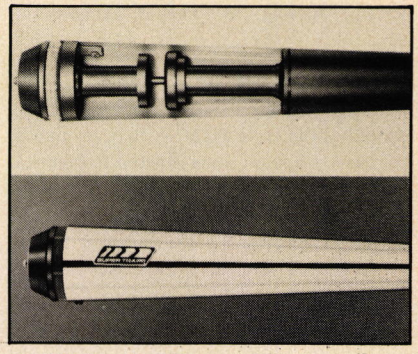
Simply Alarming: If you've a hankering to hold onto your bike, you might consider a COBRA remote alarm system from AFM International. The device consists of a small transmitter and hidden antenna mounted on the bike, plus a beeper to fit in the pocket. When the bike is tampered with, the remote pager signals the owner. Each system is discretely coded to prevent false triggering and is said to resist CB interference. The range of the pager is about one mile. The system retails for $149.95. Write AFM International for more information: Dept. CG, P.O. Box 249, Orange, California 92666. Or call (714) 996-4791.

Mail Order Catalog: If your dealer doesn't stock the parts you need, chances are good that Two Wheel Accessories does. The 1979–1980 catalog is still available. It's 80 pages of parts and accessories for all makes of motorcycles. And for the visually adept, almost every item is illustrated. Included in the wish book is everything from gloves, exhaust systems, custom seats, to riding apparel and decals. A buck and one-half will get you your own copy of this catalog. Write to Two Wheel Corp., Dept. CG, 336 Jericho Turnpike, Mineola, New York 11501 for your copy.

Fashionable T: The ultimate in high fashion this season is the "Have you hugged your motorcycle today?" T-shirt from Highway Drydock Corp. And printed above the pertinent question is a picture of Highway Drydock's president Chuck Fowler, hugging an old Indian. The T-shirts are American-made, and come in sizes small, medium, large and extra large. They cost $6.75 each and can be ordered from Highway Drydock Corp., Dept. CG, 94B Galli Drive, Novato, California 94947. Or, if the post is too risky, (415) 883-2496.

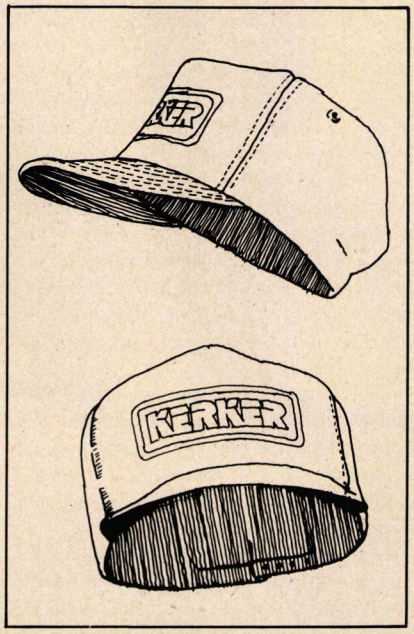
Nek-Saver: DG Performance now has color-coordinated turtleneck riding jerseys. Styled to be worn as protective gear for racing or as casual wear, the pre-shrunk poly-cotton jerseys come in all the major team colors. Take $22.50 to your dealer, or write DG Performance, 1170 Van Horne Road, Dept. CG, Anaheim, California 92806.





Cut Noise, Not Power: Discojet is no new innovation in dancing but a company that manufactures Super Trapp exhaust systems. This Super Trapp for street use is said to cut noise without eliminating performance or reducing horsepower. The kit is designed for simple installation on most performance exhaust pipes. Its all-metal construction replaces the baffles of the original system with a tri-stage inductor core, a four-inch end cap and diffuser discs. Super Trapp is adjustable for noise level and power by varying the number of diffuser discs used. For more information write Discojet Corp., Dept. CG, 920 Third St., Davis, California 95616.

Knuckle Saver: There is now an alternative to black-and-blue, mass-murdered knuckles, and it comes in eight-ounce brush-cap containers. Lubri-Tech Products hails its Gasket Remover as the answer for hard-to-remove gaskets and even harder-to-replace knuckles. Simply brush on an even coat of Lubri-Tech Gasket Remover to penetrate and loosen most baked-on, hard-to-remove gaskets, thus saving your knucks from contact with unyielding things as you pry off old gaskets. It also dissolves varnish, gasket particles and residue, and a clean surface makes for a proper seal when applying new gaskets. For more information, contact Lubri-Tech Products, Dept. CG, 7106 Barry Avenue, Rosemont, Illinois 60018.



Kerker Kap: Complement your Kerker exhaust system with this nylon cap that has a silver-embroidered Kerker cloth emblem up front. Kerker sells the hat for $5.50 at all authorized dealers. For additional information, write Kerker, 7900 Deering Avenue, Dept. CG, Canoga Park, California 91304.

Button-Up Quilt: Our smiling model may have cold legs, but her torso is snug and warm, thanks to her Team Suzuki quilt jacket. Made of washable 100% nylon, these jackets are the hot tip for those cold morning sessions at the track. Available in red, yellow or blue, the jackets are sold at all Suzuki dealers. Sizes range from XS to XL. You must provide the pants.

West's Side

Famous Last Rides

Warning! Winter ahead—Californians beware!

• I can still remember it clear as vodka. I was riding along under a sullen gray sky watching the trees flick by, bare as matchsticks, when something started to happen. Something incredible. It looked like dandruff at first. A tiny flake of it wisped past my faceshield, and then another; two or three more. Jeezus, I must be crazy, I thought.

Nah, just dandruff.

I kept on riding and ignored it as hard as I could, but it kept right on wisping past my faceshield. And it wasn't just dandruff. It was proof. I mean, here it was, the end of December, it's snowing out and I'm still riding a bloody motorcycle! "Proof positive," as Late-Show Ralph used to say from the World's-Largest-Ford-Dealership-just-west-of-the-San-Diego-Freeway-in-the-Friendly-City-of-Encino. I'm crazy as a bedbug.

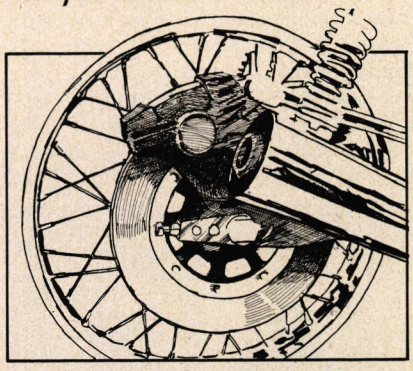
Of course, this matchstick landscape wasn't the Friendly City of Encino, it was Northern New Jersey. And if snow was any kind of surprise in these parts, nobody was letting on. It had to be me.

I had no excuse, really. I'd been putting off the Ceremonial Last Ride of the Year for weeks now. You know about the Ceremonial Last Ride. It's the joyride you take just for the hell of it the weekend before the white agony of winter shuts you off from riding for three or six or nine months, depending on what your latitude is. For me, the last year's Ride I'd taken had been memorable, the best of its kind; together with a squadron of good friends on good bikes, I'd ridden out of a sparkling-bright New York City straight into a picture postcard. The Glory of Fall. It was a wonderful Saturday-morning cruise through the brash yellowness of autumn, the lot of us wrapped in every piece of winter clothing we had that bent at the elbows. If we looked like the *Wehrmacht* dining on broiled socks at Stalingrad, so much the better. We rode up along the Hudson and found a friendly little joint on the docks at Ossining where we had a heartwarming drink and a soulwarming Italian lunch. We were home by 2:30 that afternoon.

So long, 1978.

Like few things in life, it had a lovely finality about it. We packed our bikes away, fully satisfied that winter would be here soon and our next ride would be in 1979. End of subject.

But this year things weren't so clear-cut. For one thing, everyone was gone, the squadron dispersed. No good friends on good bikes to ritualize the Last Ride properly. There was only me and Yamaha now, still dear friends, but yearning for our limits. The Fall went on falling and we went on riding. Somehow the day just never came when we were content to say, This Is It. Last Ride.



Until this lunacy of the dandruff, that is.

But I should explain. As a transplanted Californian, I have all the usual in-built Californian horror of COLDNESS. It's bad for you. No, worse than that—it's un-hip. To a Californian, see, there's something contemptible about weather that hurts naked skin. If the Bear Republic were ever threatened with a real winter, a proposition would find its way onto the ballot—say, Proposition 14—abolishing low temperatures. It would pass. Jerry Brown would sign it.

But alas, New York, New Jersey and an alarming number of otherwise reputable states continue to be mired in this annual indecency called winter. Oh, I know there are those all-weather riders and other certifiable Eastern loonies among you who say winter is a good thing. Hell, some of you even say Rheingold is a good beer! But let's not have any truck about it, winter is nasty and naughty and anyone caught outside playing in it should have his knuckles rapped bloody.

Yet it kind of creeps up on you. That's the hell of it. Like a bland-faced medical attendant in tennis shoes with a straight jacket behind his back, it creeps up. No, it isn't cold yet, you say. Cool maybe, but not cold. Brisk. Yeah, that's it, *brisk*.

And before you can whistle the Star-Spangled Banner he's got you by both arms, out comes the straight jacket and he's lacing you in . . . while you're giggling like an airhead and mumbling, "Gimme cold, gimme more, I love it, I love it." And so it happened to me this year. It got colder and colder and I kept loving it and getting more and then suddenly one day there was the dandruff, and . . . zap! Winter gave me more than I could take. All because I missed the C.L.R. of the Y.

Next year it won't happen. See, after I unfroze, I made out a checklist so that this scandalous business of full-on Winter doesn't catch me napping again. After all, like Static Cling and ring-around-the-collar, we're stuck with it. What we need (well, *you* don't if you're one of those crazy Rheingold-drinking winter riders, but *I* do) are the Ten Warning Signs of Coldness and Other Un-Californian Events:

1. Your fingers won't bend enough to get your helmet strap started.
2. The doorman won't help you with it unless you come back inside—and close the door behind you.
3. While crossing the street to your bike you realize you have so many layers of clothes on that you're walking like you just did Big Doodie.
4. Fifteen minutes pass as you're kickstarting your bike but—here's the clue—you kind of enjoy the exercise.
5. The bike refuses to run with the choke all the way off. The lever must be broken, you hum defensively.
6. After riding for five minutes the little smudge of hard clear stuff on the inside bottom of your faceshield starts getting bigger. And your nose isn't dripping.
7. After ten minutes you can't feel the wind bending up around the tank onto your thighs anymore.
8. After eleven minutes you voice goes up an octave.
9. After twenty minutes you get an impulse to stop your bike with the engine still running, tear off your gloves and fondle the cylinder heads as if they were Big Arlene down at the Dew Drop Inn.
10. After an hour you do it.

Californians beware. If you encounter any of the above Warning Signs of Coldness see your physician immediately (for one thing, he's got a warm office). If you encounter two or more of them go directly to your shrink, you're in mortal danger of degenerating into a winter rider.

However, if you encounter six or more of the Warning Signs at once, don't worry, don't think, don't move a muscle. It's too late for that anyway. Instead, just remember to chip off the inside of your faceshield from time to time, keep riding, and I'll see you down at the Dew Drop Inn. Maybe tonight, between the two of us, we can get somewhere with Big Arlene. Because we sure blew the Ride. —*Ted West*

Nobody in the motorcycle business has more confidence in their products than Suzuki.

And to prove it, Suzuki is backing all 1980 GS streetbikes with a 12-month unlimited mileage warranty.*

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*See "Limited Warranty" brochure for details. This warranty furnished only in the 48 contiguous United States and Alaska.

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SUZUKI 1980

The Performer.

Techspeak

Alchemy of the Eighties

Turning LED into gold

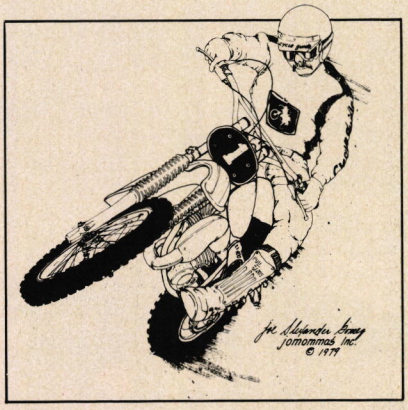
• Your curiosity must have been piqued by now. And if you're a typically inquisitive motorcyclist, you've *got* to be wondering what on earth that digital instrument panel on the cover of this issue is all about and on which new bike it will appear.

Well, as much as we wish that those instruments were fully functional, they're not. The entire panel is a mockup that we designed and had built just to provide an eye-catching illustration of one innovation that the Eighties might bring to motorcycling. The bike that it's mounted on is a new Honda CBX, only because we felt that the Galactican look of its top fork crown and clip-on alloy handlebars would add to the futuristic atmosphere of the picture. But rest assured that Honda is *not* contemplating CBXs with digital instruments, at least not to our knowledge.

Don't think, though, that we were trying to trick you with far-fetched, unfeasible instruments, because we weren't. According to Jim Green, owner of Key Instruments (whose Dynall division built the digital panel for us), a working version of that very instrument cluster could be built and sold *right now*, with every one of its readouts operational. Green says, in fact, that the particular displays we chose for our panel would be a piece of cake to implement, that they are just the tip of an electronic iceberg as far as what *could* be supplied on a really sophisticated panel.

If that surprises you, it shouldn't. Digital instruments have been kicking around for 15 years or more, and a panel like ours was possible way back then. It would have been incredibly bulky, ridiculously fragile and prohibitively expensive, but it *could* have been built. In the last few years, however, the cost of electronic components has dropped dramatically while their quality and durability both have improved markedly. And that, combined with recent advances in microchip technology, has made it possible to build a compact, rugged and selectively affordable digital instrument cluster for motorcycles. What's more, that instrument package could be made to do far more than anyone ever dreamed of 15 years ago—maybe, in fact, even more than your wildest dreams right now.

As interesting as a "dashboard" loaded with LED (light-emitting diode) or LCD (liquid crystal display) readouts might be, some of the most intriguing parts would be hidden inside. Chief among them would be a small solid-state computer like that found



in some calculators, a tiny brain that could actually "think" in addition to running the displays. Since all of the readout data would be funneled through that one brain, it could be "taught" to sort pertinent information in a highly useful manner.

In addition to displaying road speed, for example, the computer could record and recall information such as: average speed of a trip; highest speed recorded during the trip; elapsed time and total miles driven during the trip; time and distance remaining at any point while the trip is in progress; and estimated time of arrival. The computer also could monitor and display the rate of fuel consumption at any time and tell you (either in miles or gallons) how much fuel is left in the tank.

Some automobiles now have optional onboard computers that perform these same kinds of trip functions, but Green says that much more could be done, like provide a shifting guide to signal the optimum shift points for best acceleration and suggested rpm for maximum fuel economy. The system even could include a running dynamometer that would, upon request, tell you how much torque and horsepower were being developed at any given time. The bike's rate of acceleration even could be displayed either in *g* or by converting your previous run through the gears into an estimated quarter-mile elapsed time and top speed. And through a keyboard concealed inside the panel, you could even program the computer to remind you of any service operations before and as they come due. The criteria for those reminders (accrued mileage, elapsed time since previous service or specific calendar dates) would be determined by you when programming the computer. You could have at your fingertips information such as compass headings, altitude, ambient temperature and wind speed.

It is, of course, possible to put *too* much on display at once that would confuse and distract the rider. So the system continuously could display the most pertinent information (speed and rpm), flashing the other data only when it is asked for or when the computer deems it relevant. That last feature is a fascinating aspect of the computer's capacity for memory, for it can be programmed to remember what kind of information you have been asking for in the past and then give it to you in the future at a time when you might need it.

Digital readouts are not, incidentally, always the ideal way to display a value. They are just a row of numbers, every one of which must be scanned by the eye before the brain comprehends the *whole* number. If the pinpoint accuracy of digits is not mandatory, dials usually are better for speedometers and tachometers because the relative position of their needles give the rider an instant approximation of the speed/rpm at a glance. Actually, thermometer-type bar graphs can be better still for quick-read purposes.

The mini-computer still would have sufficient capacity left to alter the spark curve to suit various conditions as you ride, as well as regulate the fuel mixture to compensate for changes in relative air density. It also could govern a fully automatic cruise control; and when entering an area notorious for a high incidence of speeding citations, compulsive ticketgetters could save their licenses by punching a maximum rate of speed into the keyboard beforehand. The computer then would not allow the motorcycle to exceed that limit until told to do otherwise. The possibilities are endless.

At today's prices, a full package of instruments containing all of the features mentioned here would cost more than the motorcycle it would be installed on. But a computerized cluster with a reasonable array of digital readouts like the one on our cover would sell for around $700, or much less if the demand were great enough.

Interested? Well, Jim Green makes no promises, but if he gets enough legitimate inquiries, he'll consider building working digital dashboards not unlike our mockup. If you're really serious about owning one, write to Green at Key Instruments, 1520 West Rosecrans Avenue, Gardena, CA 90249.

Of course, if he does build them, you *know* who's getting the first one, don't you?

—*Paul Dean*

GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

EDITED BY LARRY WORKS

COMING SOON

• Most of the big news this time around comes from **Yamaha.** At its recent press introduction, Yamaha displayed somethings old and a few that are all-new. And one of the new—though not unexpected—models is the **Maxim I,** a four-cylinder air-cooled 653cc streeter. A single disc brake in the front and a drum binder in the rear handle the stopping chores on the Maxim, while electronic ignition, new cast wheels and a claimed dry weight of **441 pounds** round out the package.

• Another no-surprise bike that was on display from Yamaha was the XT250. The four-stroke single sports 8.1 inches of wheel travel at the front end, while the monoshock rear suspension allows seven inches of travel at the tail. The new street / trail bike runs claw-action tires, and tips the scales at 249 pounds. A TT version of the same bike also is included in Yamaha's 1980 lineup.

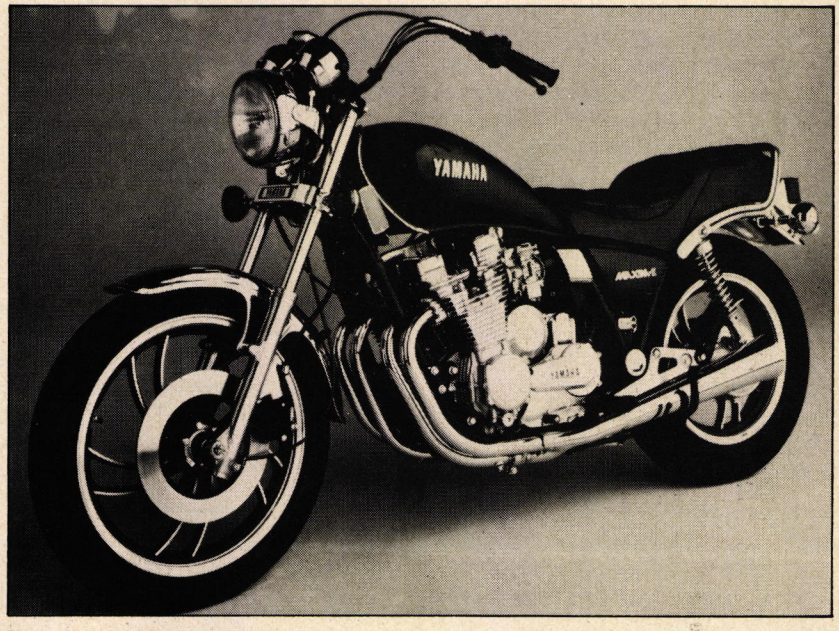
• Also built around the same engine as the XT and TT are a pair of street-only models, the **Exciter** I and II. The quarter-liter streeters feature **electric starting,** and differ from each other largely in that the II has a removeable seat / rack / trunk system.

• While the fanciers of high-tech machinery at the show eyed the new engine configurations, almost everyone else grouped around a pair of new high-stylers from Yamaha, the **850cc** and **1100cc Midnight Specials.** The motif for the two boulevardiers is simple: all the **black and gold** you could ask for.

• One bike that was not at the Yamaha presentation was the **RD350 L/C** that was introduced at the recent Paris show. When the bike was previewed, it gave rise to considerable speculation that it would be a cornerstone to the 1980 Yamaha lineup for the U.S. Such apparently is not the case, though at **307 pounds** dry the **liquid-cooled** 350 is enough to give two-stroke fans pause to consider the advantages of living overseas.

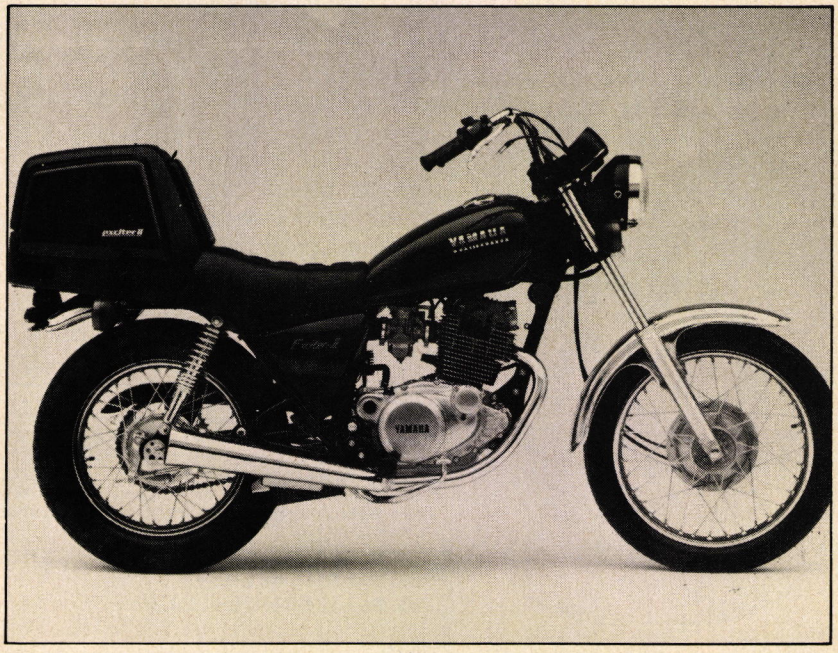
• But not all the news emanates from the Yamaha corner. **Harley-Davidson** also had some new models to show. The highlight of Harley's hand for the new year has to be the new **FLT** 1340 **Tour Glide.** This newest of the Glides greets the Eighties with a **rubber-mounted** engine, **five-speed** transmission and an enclosed final-drive chain running in an oil bath.

• **Can-Am** also has made some 1980 announcements. Reportedly, **four Qualifiers** are in the line-up for the new model year. The



New Yamaha Maxim I 650 Four

If not the highest-tech 1980 Yamaha, definitely the perkiest.



1980 Exciter II shown with travel trunk in place

Furthering the concept of the modular motorcycle.

Continued

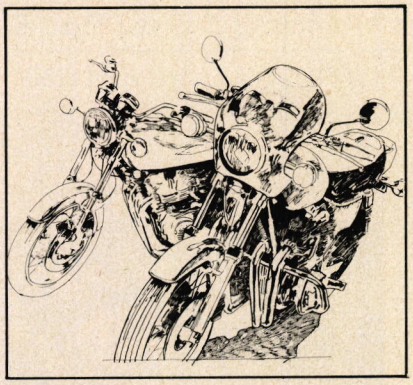
Two-Wheel Transportation Day

Rally 'round the bike, boys.

• If there's any truth to the notion that California leads the country in forming opinions, public rallies in support of two-wheeled vehicles soon will be as common as key rings.

As an example of the phenomenon, take one recent rally, Los Angeles Two-Wheel Transportation Day. It was assembled by the Los Angeles Council of Presidents, a blue-ribbon panel representing business and industry in the L.A. area. The event also was supported by a variety of special-interest groups—the Motorcycle Industry Council (MIC) and the Moped Dealers Association among them. Even the L.A. city government got into the act.

The gathering was promoted to proselytize two-wheelers in general as commuting devices, for short trips and—almost as an afterthought—for recreation. The emphasis clearly is on the two-wheeler (of whatever kind) as an alternative to the automobile, not as a replacement. As part of the rally, participants on motorcycles, mopeds, bicycles and the like rode in convoy through the city, escorted by motorcycle cops who dutifully stopped traffic to allow the riders to pass, unhindered by stoplights.



But the Day was more than just a good time cheating traffic jams. Some of the information made available at the rally showed that fully 80 percent of the automobile trips in Los Angeles County are single-passenger journeys shorter than 10 miles. In light of that tidbit, using a motorcycle for the quick run around the corner should begin to make sense, even to the disbeliever. Should, save for one thing even the L.A. bigwigs can't control: One study showed that the single biggest factor lending resistance to widespread motorcycle use is aversion to inclement weather.

According to John McClellend, one of the organizers of the event, the rationale behind Two-Wheel Transportation Day is "to draw attention to the value of individual effort while at the same time cleaning up the environment and encouraging sensible energy use." Lofty goals indeed, and it's an interesting switch to have motorcycles included in the group that represents reason in the eyes of urban government. The message reads clear: In the fuel-conscious Eighties, the balance will shift so that the motorcyclist becomes socially responsible while the pilot of the gas-guzzler becomes the badass.

As foolish as it is to lump all two-wheeled vehicles into one common cluster, as a publicly sanctioned gala that in part favors the motorcycle, TWTD *is* important. Without it and other gatherings of its kind, valuable information might never funnel down to the non-motorcycling public. For example, in research done by the MIC, the bottom line reads: "If automobiles were used in place of motorcycles for those miles that motorcycles currently travel in Los Angeles County (figures from 1978), 15,-815,841 additional gallons of fuel would be consumed annually." With that sort of information as a backdrop, two-wheeled-vehicle rallies could start popping up across the country.

—Merry MacTavish

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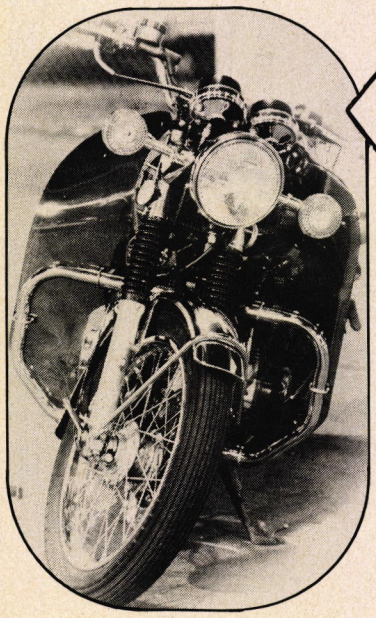

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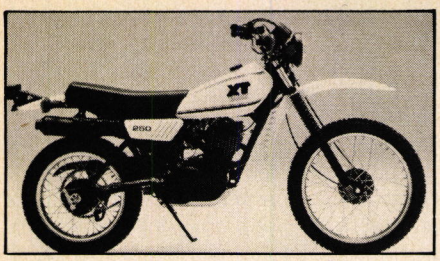


Five-speed, four-stroke XT250G

With a 1:1 weight:cc ratio.

175 and 250 are still extant, while the 370 been enlarged into a 400. A new rotary-valve model that's labeled a 350 but actually displaces **288cc** fills in any gaps. **Oil injection** has been **dropped** for 1980 on all the Qualifiers. For 1980, Can-Am's motocrossers feature a novel air intake. Each bike's top frame tube functions as an air scoop, drawing air from behind the front number plate. And the MXers except for the 125 all have 38mm Marzocchi forks with nearly a **foot of wheel travel.**

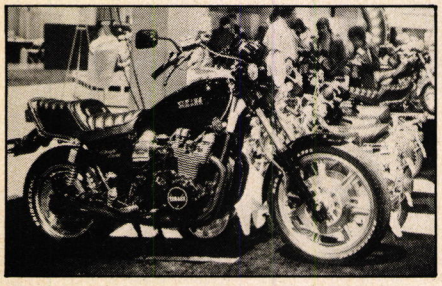
• As a follow-up to a product evaluation run last month, the **Stop & Go** Tire Repair Kits will jump in price to $24.95 for the tube-type and $26.95 for the tubeless kit. But the price hike isn't just due to inflation. The new kits will include a pair of **steel tire irons,** some hand cleaner and a hand towel that were not part of the old kits.

• If you haven't been able to come by an official **milkcrate** for supporting bikes and holding parts from behind your grocery store, **S&W** can help you out. The company has lept into the fray with a bright blue crate, milk variety, to hold up your favorite dirt bike.

• News from the Earls Court and Paris shows is that only **two new** street bikes will come from **Ducati** for 1980. In addition to the **500cc Pantah,** there will be a **replica** of the **NCR Ducati** on which Mike Hailwood won the 1978 Formula One TT at the Isle of Man. The repli-racer is really a Darmah dressed in a **full fairing,** with a red frame and solo seat completing the transformation.

• Sometimes you need a **sponsor** to go fast. The question is where to find one? A new publication, *Sponsor World*, is written to share all the tricks of **snaring** the elusive sponsor. The publication can be ordered through GPO Box 2339, New York, New York 10001.

• G2 used to refer to military Intelligence. These days it calls to mind the **Benelli G2** moped. If you prefer short ones in red, white,



Yamaha 1100 Midnight Special

Done to the gills in black and gold.

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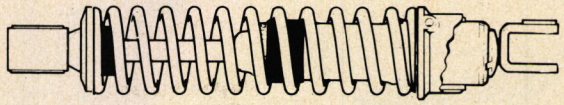
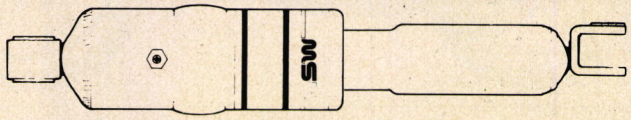
DECISIONS



HYDRAULIC STANDARD D-20 G

STREET STROKER FREON SS-5 (AVAILABLE DEC. 1979)



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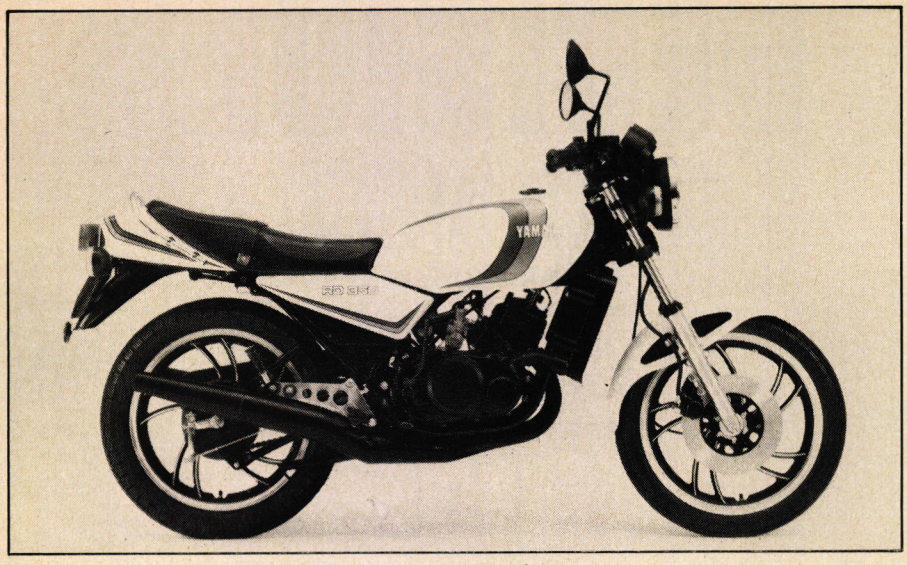

European-only 47-horsepower liquid-cooled RD350 L/C

Add it to your list of can't-haves.

orange, royal blue or midnite, there's a G2 for you, complete with adjustable seat, luggage rack and fork lock.

• It looks as if Virginia is for Maico lovers, or Maicos love Virginia MX tracks, or something of the sort. At least this is certain. **Maico** East has built an **MX test track** right outside its Suffolk, Virginia plant. An enduro track is set to follow shortly.

• But Maico is not alone in the test-track game. **Suzuki** has built a new **track** in **Peru,** where engineers say track conditions from any circuit in the world can be reproduced. Reportedly, **all future testing** will take place at the new track.

• Just to clear the air, **Hondaline's** three-case **luggage** system will not fit the **CBX.**

• And coming soon from **Italy** will be more **vee-twins,** according to the president of the Italian Motorcycle Manufacturers Association. The vee configuration is seen as the only **alternative to** a head-to-head **confrontation** with Japanese designs.

• In more talk of vees, it seems that Harley-Davidson has gotten into the **nightshirt** business. The 100-percent cotton sleepers are adorned with Harley logos and are available only through **Harley** dealers. And of course the shirts are **vee-neck.**

• With McCulloch Corporation, Evansville, Indiana, already manufacturing a **plastic crankcase** for a moped, can plastic parts in motorcycle engines be too far behind?

• And on the subject of new technology, **Cibié** has reportedly developed a prototype **headlight-leveling** system that uses low-pressure hydraulics to compensate for varying conditions of motorcycle load and brake dive. Also said to be on its way is a system that would re-aim the headlamp based on **camber angle.**

FEDERAL CASES

• A **trial** of some Hell's **Angels** members in San Francisco has produced an interesting variation on **due process.** Jurors for the case have so many defendants to keep track of that they have been issued **"programs"** to avoid confusion.

• In other **California** news, the state's **motorcycle licensing** program has been

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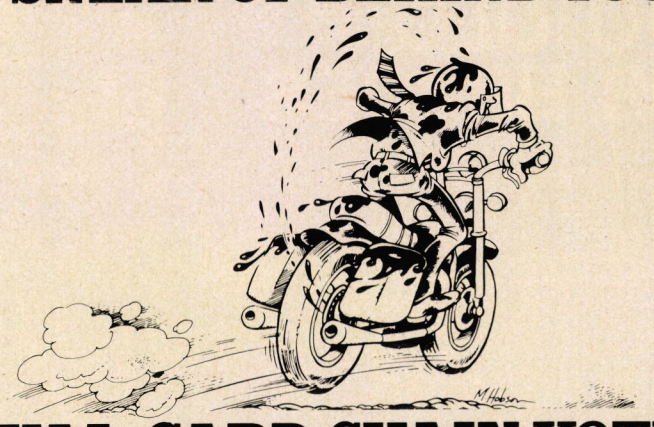
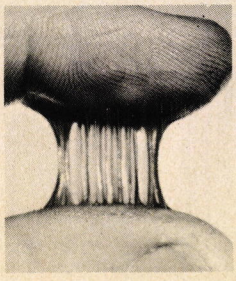


KAL-GARD CHAIN KOTE



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beefed up, and the Department of Motor Vehicles has advised would-be licensees to study the **new test** material prior to trying their luck on the revamped written license exam.

• On the subject of licenses, nationwide controversy continues to rage over a recent **Bureau of Land Management** regulation that requires all **off-road** motorcyclists have current driver's **licenses.**

• If you do ride off-road and want to stay on the good side of the powers that be, write to the **AMA** at Box 141, Westerville, Ohio 40381. Include a self-addressed stamped envelope and you'll get back a pamphlet entitled **"Dirt Laws,"** containing a summary of off-road regulations for **all states.**

• NHTSA Administrator Joan **Claybrook** has made few friends in New York and Tennessee, it seems. ABATE groups from both states reportedly are filing a **petition** with President Carter asking for her **immediate removal** from her post.

• A modification of the **lights-on** law in **Illinois** now allows a white light other than the headlamp to be run, provided that the light is visible 500 feet away. And as part of the new ruling, a violation of the lights-on law in that state **no** longer will be a **moving violation.**

• **Pennsylvania** bikers, along with other motorists in urban areas of that state, will have to pass an **emissions inspection** if a bill before the Pennsylvania legislature is passed. The new vehicle-testing program could go into effect by **August 1,** 1980, and would cover Pittsburgh, Philadelphia, Scranton, Wilkes-Barre, Bethlehem, Allentown and Easton.

• Despite rumors a few months ago that **Great Britain** soon would impose a **ban** on plus-100-hp motorcycles, news from Britain's Department of Transport indicates that no such action will be taken. Apparently, no one stepped forth with evidence that **high-horsepower** bikes are any more dangerous than the less-powerful variety.

• A new bill in France has some alarming implications. The measure, passed by the French Council of Ministers but not yet law, would force motorists stopped for speeding to **pay the fine** on the spot. According to the bill's wording, the kindly officers also are impowered to take credit cards and checks—with proper identification, of course. And the penalty for not shelling out to the gendarme is a **doubling** of **the fine** and a possible **license suspension.** *Vive la difference.*

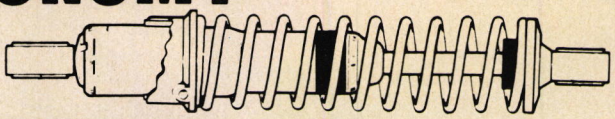
• As intriguing as the possibility someday of paying for your **traffic offenses** with your ring and watch might be, some other French legislation has more interesting ramifications. A bill is before the French Parliament that would, if passed, key traffic **fines** to an individual's income. The fines would be based on a **set percentage** of a person's **yearly income** so that everyone would be fined according to his worth. Reportedly, the bill has thus far gotten cold treatment by the legislators.

HARD CASH

• These days the question of hard cash seems to run hand-in-hand with the present world **oil**

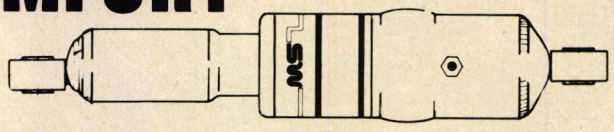
Continued

ECONOMY HYDRAULIC STANDARD



PERFORMANCE STREET STROKER FREON

COMFORT AIR ADJUSTABLE MARK III



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KZ-1000 (77-79)	D-3G SS-2 A-6	SP 9525-9 DT 85-145 — — —	62-13-126	SP 3252-20K

MODEL	SHOCKS	RECOMMENDED SPRINGS	AIR BOOST FORK KIT	FORK SPRINGS
Z-1 R (77-78)	— — — SS-6 AT-21	— — — DT 85-145 — — —	62-13-126	SP 3252-20K
KZ-1300 (79-80)	— — — SS-6 AT-21	— — — DT 85-145 — — —	62-13-144	

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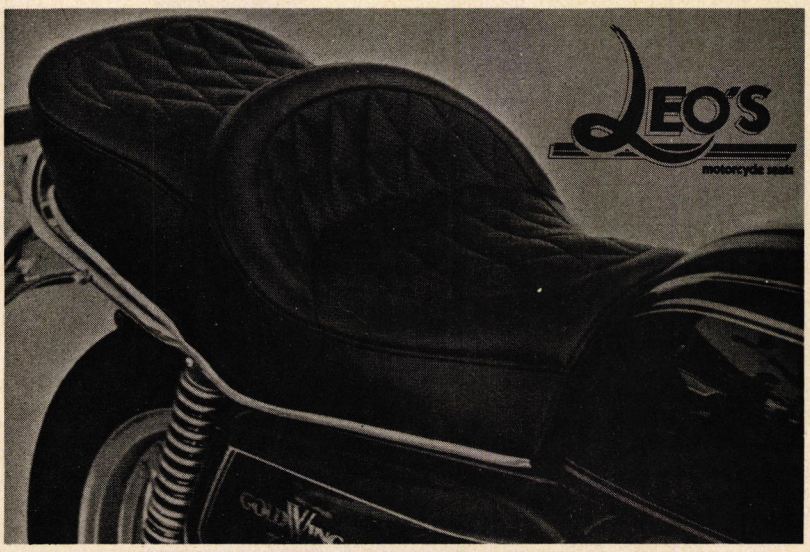

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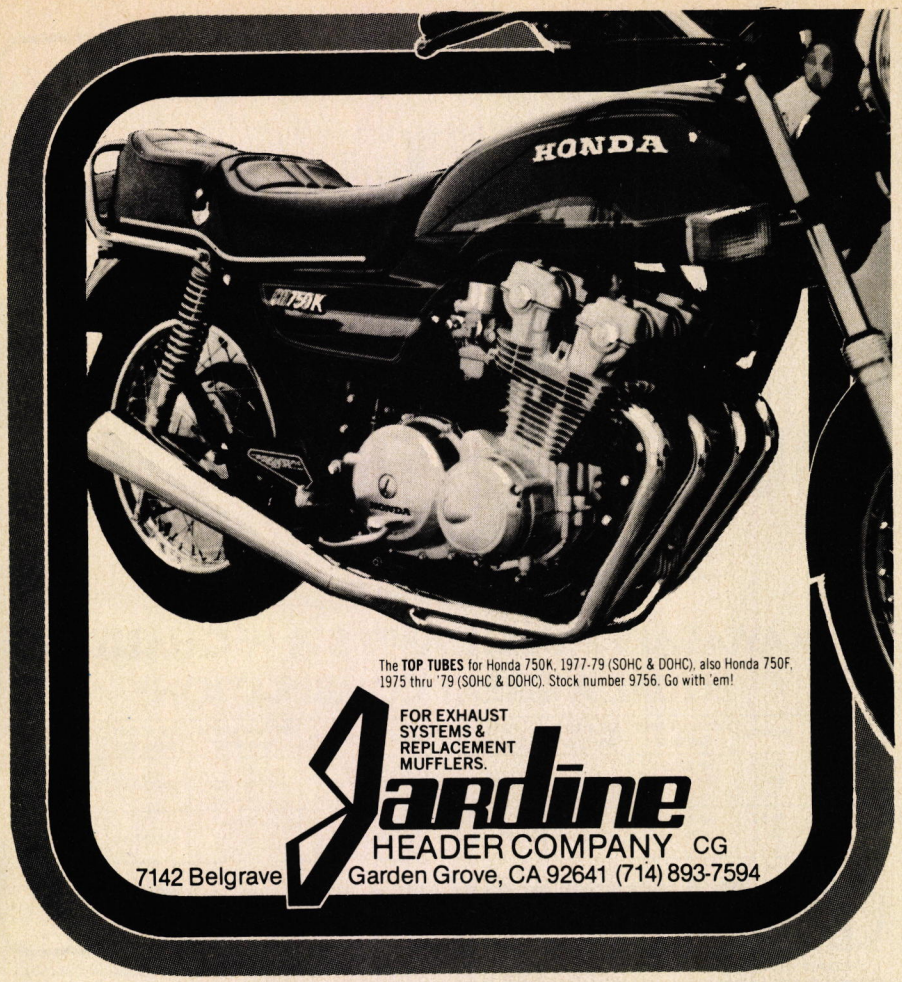

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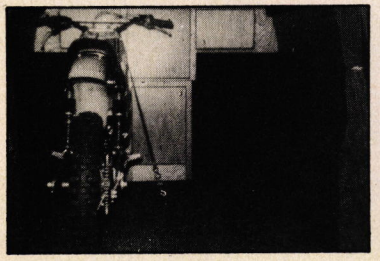

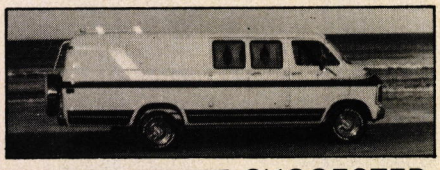

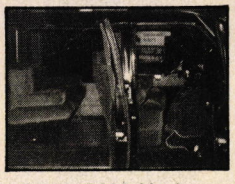

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economy. And on the oil front, the news grows somewhat **gloomier.** Starting at the beginning of the new year, Saudi Arabia will **cut back** to its former level of oil production. It had been producing crude petroleum at a higher-than-normal level in an effort to ease a global oil **shortage.**

• And while reducing the oil output of a single country will no doubt have **serious** short-term repercussions on the oil economy, experts at the British Petroleum Company have painted a somewhat **harsher** scenario for the **long-range** oil picture. BPC researchers say that for the non-Communist world to meet predicted **oil demand,** the oil industry would have to discover the equivalent of two Alaskan oil fields per year, or make an annual find equaling all the oil taken from the rich North Sea fields for the past 10 years.

• But regardless of the state of the oil economy, the **fuel-alcohol** business should be booming—at least in America. A rider attached to a Postal Service bill in the U.S. House of Representatives and a congressional directive to the **Pentagon** should give the burgeoning U.S. gasohol business the business. Both the Postal Service and the Pentagon have been instructed to make a push on **buying** domestically produced **alcohol** and alcohol-related fuels during the coming year.

• And if the **future** of **alcohol** fuels is still in any doubt, consider this: Ford Motor Company will spend a reported **$5 million** over the next five years to produce a line of **all-alcohol-powered vehicles.**

• On the state level, **Arkansas** apparently has responded to some AMA pressure and has reversed a long-standing **tax policy.** As a result of that reversal, tax paid on **motorcycles** in that state now will be considered a legitimate tax **deduction.**

• And on a personal note, Steve **Eklund,** who led the 1979 mid-year and end-of-year **AMA** Grand National Championships/**Winston** Pro Series point standings, has taken home a new series **record payoff** of **$28,000.**

RUMORS

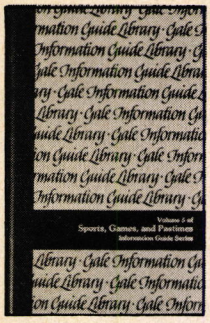
• With the Big Four more or less having shown its wares, you might think that the rumor mill would start grinding down. But then, there's always Europe to consider. The word is that a **new BSA** might beat the NVT Rotary to the marketplace. The BSA arm of NVT reportedly is negotiating with Yamaha for the purchase of an undisclosed number of **XS650 engines.** Whispered plans concern mounting the engines in frames designed and built by BSA.

• With the Milan show upcoming, there is plenty of talk about **bizarre motorcycles** being bolted together by harried mechanics in time to stun the public. Discarding some of the more fantastic tales, talk centers on the **Moto Guzzi** factory. Reportedly, a **vee-six,** double overhead camshaft, water-pumper shaftie will be on display.

• And in other talk about Moto Guzzi's plans for Milan, a new **1200cc vee-twin** streeter figures in. Reportedly, the vee already has been

Continued

Book Review



MOTORSPORTS:
A Guide to Information Sources
Gale Research Company
193 pages, $24.00
Book Tower
Detroit, Michigan 48226

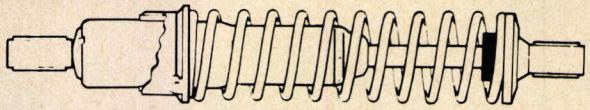
• At the core of this book lies an astonishingly good idea: an essential bibliography of automobile and motorcycle racing, including periodicals as well as books. The inflationary $24.00 price tag would be reasonable for this cheaply bound little item, but only if you actually had the lore of motorsport at your fingertips.

Unfortunately, the Gale Research Company and the two editors culpable for putting together this volume have failed miserably. Instead of a guide to the sport, they have assembled an aimless list of books culled from The Great Remainder Table in The Sky, as well as an incomplete list of periodicals. I can make allowances for the fact that automobile racing absorbs most of the editors' attention. But the inclusion of "Motorcycle Racing," by Nicole Puelo—"a book for the slow reader" according to the editors—and the deletion of any book regarding the career of Mike Hailwood is inexcusable. So, too, is a list of racing periodicals that neglects *Motor Cycle* and *Motor Cycle News,* the foremost British racing newspapers.

From the bland and inane descriptions of the works listed here, it's clear that the money and energy allocated for this task were exhausted quickly, and a quick scan of index cards in some library's card catalog was substituted for the discerning eye for valuable sources that the title promises. Compounding this lack of critical insight is the wholesale contradiction between what these editors find valuable and my own experience with many of the references included here.

I would have been satisfied if "Motorsports" had been either a subjective guide to essential references or an exhaustive table of all references. It is neither. That it costs $24.00 adds insult to a waste of time. My $1.00 catalog and motorcycle supplement from Classic Motorbooks, P.O. Box 1, Osceola, Wisconsin 54020 does a much better job and at least I know the books it lists are not out of print. —*Michael Jordan*

THRIFTY
HYDRAULIC STANDARD



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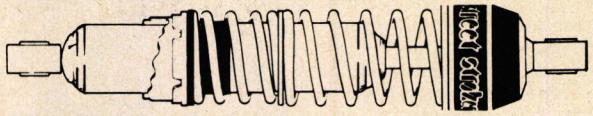
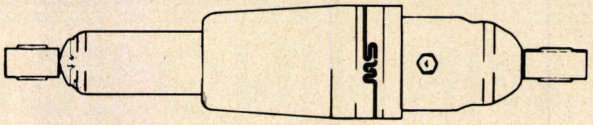


CONFIDENCE
AIR ADJUSTABLE MARK II



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SR 500 (78-79)	D 2 G* SS-1 A-3	SP 8515-9 DT 75-125 — — —	62 15 138

MODEL	SHOCKS	RECOMMENDED SPRINGS	AIR BOOST FORK KIT
XS750, 750S (78-79)	D 2 G* SS-1 A-2	SP 1040-9 DT 105 -145 — — —	62 15 129
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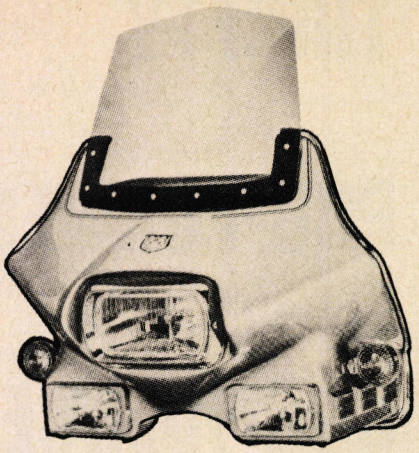

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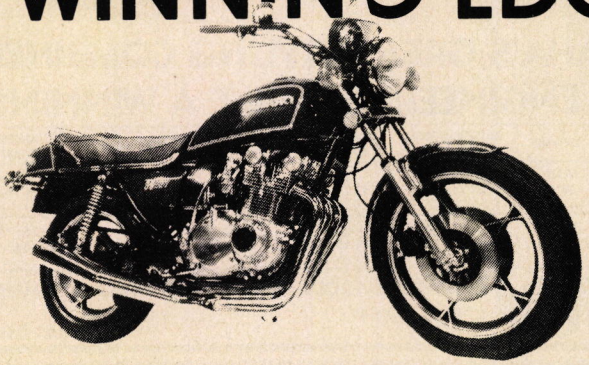

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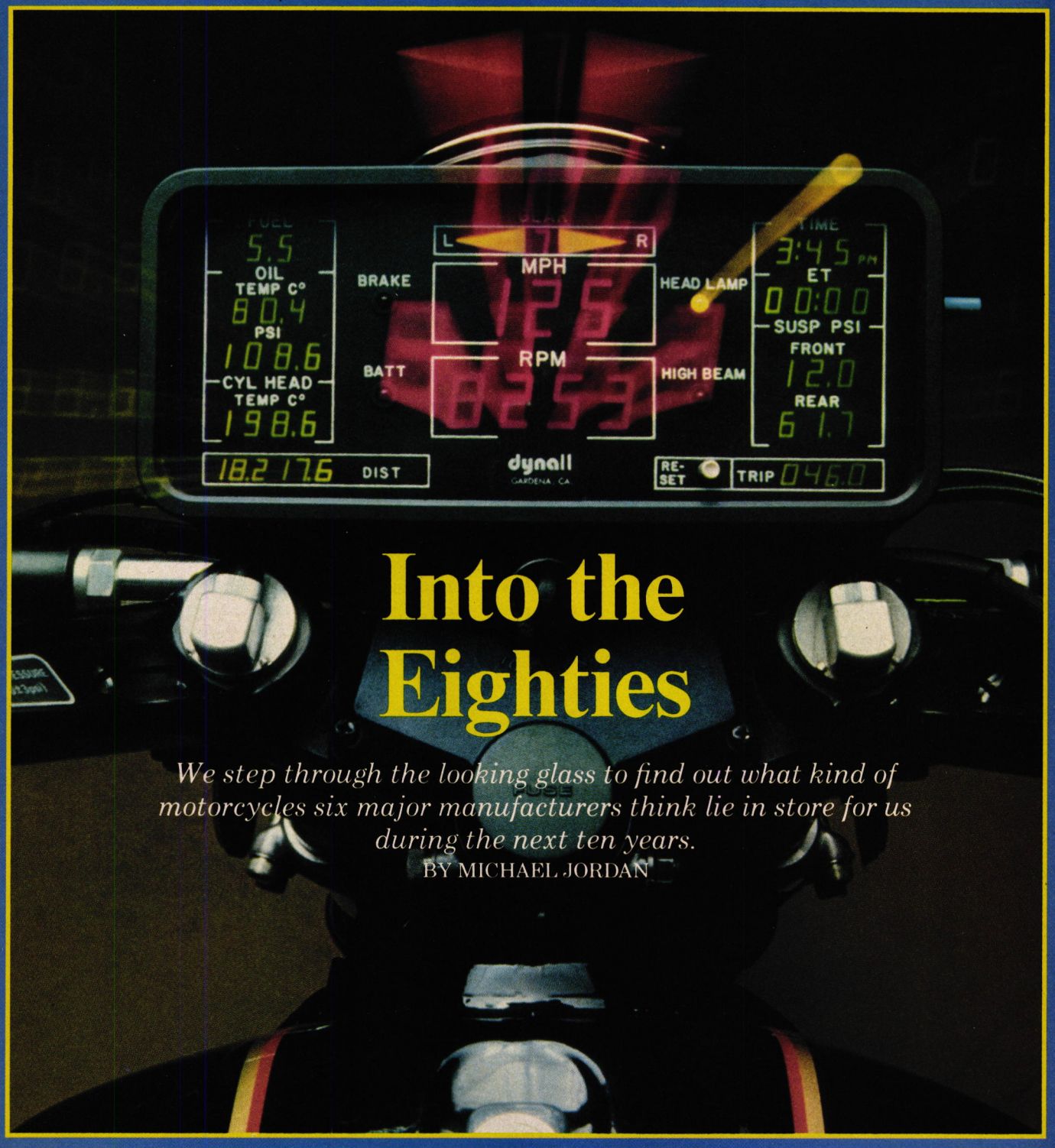
seen, and it sports squared-off cylinder-head fins in the V-50 mode.

- Also for the Milan show is said to be a new **Moto Morini** 250. The quarter-liter streeter is said to produce more than 25 horsepower and weigh in at **280 pounds.**
- Back to this side of The Pond, **Bell** is said to be experimenting with a new **light weight** open-face helmet designed for **enduro** use. The design incorporates the same small-shell technology that made the Moto III possible.
- It could be little more than wishful thinking on the part of disappointed enthusiasts, but some of the talk in shadowy corners of the display area at the Yamaha 1980 model introduction concerned certain **liquid-cooled 350s** making their way to U.S. shores in large quantities **one year** from now.

APART FROM THE CROWD

- The next time you get a speeding ticket as the result of a radar traffic-control device, maybe you should ask to see the unit up close. Apparently to circumvent the high cost of buying and maintaining real radar units, many police departments are availing themselves of **Masqueradar,** an all-plastic **non-functioning replica** of a **radar** unit. If you spot the phony unit in a patrol car, perhaps you should accept the toy ticket, then offer to pay it with **play money.**
- One of the reasons the uninitiated might prefer a car to a motorcycle is that unmistakable **new-car smell.** There are even auto air fresheners that smell like new cars. But all that could come screeching to a halt in light of recent allegations that the odor, long associated with the sweet smell of success, is **carcinogenic.**
- Researchers at the University of California are now saying that the **secret** to surviving a motorcycle **accident** could come from the lowly **woodpecker.** The fledgling **theory** is that while feeding, the bird is able to slam its beak into a tree with the force of a 1300-mph impact, then snap back with a **1000-g force,** all without apparent harm. The safety moguls have concluded that much of the woodpecker's ability to perform relates to a lack of head rotation on impact. Even now, helmets are on the drawing boards that will attempt to cash in on the bird's feat by **limiting rotation** on impact.
- According to a story in the *Toronto Star*, **Pope John Paul** could have real possibilities. The article said that the pontiff responded to a gift of a $25,000 German-made automobile by saying, "It's a lovely car—but I'd **rather have a motorbike."**
- So you always thought that scooters were too small? Well, a new **Vespa** should put that notion to rest. To commemorate an upturn in sales, Vespa recently manufactured what must be the **world's largest scooter.** It stands **12 feet** tall and meets the ground with a pair of truck tires. Reports that Honda will retaliate with a working Gold Wing the size of Rhode Island are as yet unconfirmed. •

FROM THE FUTURE FILE:



Into the Eighties

We step through the looking glass to find out what kind of motorcycles six major manufacturers think lie in store for us during the next ten years.

BY MICHAEL JORDAN

ROBIN RIGGS

You've just clicked into seventh gear, the throttle is wide-open and the engine sings a song of 8253 rpm. You're on board a two-wheeler called the Twentieth Century Limited and the Eighties lie dead ahead.

Our destination is the motorcycle design of the future, for the Eighties bring with them new priorities. Actually, the events of the past two years anticipate the hard facts of the future: In 1978 the initial EPA air-emissions standards regulating motocycles arrived; in 1979 new-bike price stickers soared; and in mid-1979 came a reminder that the energy shortage is more than a figment of some newscaster's imagination.

Cycle Guide believes the motorcycle must change in order to survive. To find out how it will evolve, we asked six major motorcycle manufacturers to look into the future. BMW, Harley-Davidson, Honda, Kawasaki, Suzuki and Yamaha each addressed technological innovations in the street bike as well as its possible role as a transportation device. The dirt bike builders contributed further information to our future file. Government regulations and alternative energy sources also were discussed.

Six discrete visions of the future are the result. But don't look for the names of next year's new models in this guidebook to the future; instead, pay attention to the priorities that will shape their design and the technology that will give them substance. One theme is recognizable: The dashboard of the Twentieth Century Limited will look right at home on the street bike of the Eighties.

Continued

INTO THE EIGHTIES:

Honda

Radical transpo-bikes change the way America travels.

• Honda's new flagship, the shaft-drive CB900, leaves no mystery about its corporate battle plan as the Eighties begin. The 900 represents the first Honda built in the American motorcycle ethic from the ground up. A 62.2-inch wheelbase of nearly dragbike dimensions and a seat height of only 30.9 inches make it the longest and lowest beast on the boulevard this side of a chopped and channeled Mercury or a Harley-Davidson Low Rider. The air/spring suspension fore and aft sets new standards in ride quality. And the detuned 900cc powerplant aims to deliver XS Eleven-like mid-range horsepower.

Jon Row (Honda's Product Research senior engineer and spokesman for Ikuo Shimizu, Motorcycle Sales Staff Coordinator) says the American market priorities which transformed the European CB900F into the shaft-drive American version will alter the entire Honda line within the next few years. Honda's market studies show that American motorcycles are no longer the exclusive property of street-wise boulevardiers, but have been adopted across the board by American riders. Soon, motorcycle styling like that of the CB750K will disappear to be replaced by teardrop tanks and sweeping handlebars. Even touring bikes will feel this influence, as the new Gold Wing indicates. Enclaves of European-style motorcycles that emphasize high performance will remain, but they will be backwaters in the mainstream of Honda's motorcycle sales.

Enthusiasm for American motorcycles arrived just as the market in general had begun to stagnate, Row claims, for the showrooms are filled with new blood now instead of just repeat buyers. New blood is crucial if a manufacturer wants to avoid saturating his market and putting himself out of business. Yet as Honda looks into the Eighties, nearly everyone susceptible to the siren song of the motorcycle will have answered the call by about 1985.

Row indicates that the next revitalization of the motorcycle industry lies in the transportation market, a "new wave" of rational vehicles that could appear as soon as 1982. The deregulation of oil and the institution of a European-like price structure for gasoline in America will stimulate widespread consciousness of the motorcycle's fuel efficiency, in Honda's view. So while America won't abandon the car, it will be more aware of the bike.

Basic transportation priorities are already reflected in the CB900's Trail-90-like, dual-range 10-speed transmission, as well as the large 3.7-gallon gas tank on the entry-level CM400E. Beyond this, a wholesale change in the way we think about motorcycles is in store. As Row says, "The CB750 as we know it will not exist in

1989." Now 750s are associated with high performance. But in ten years they could seem puny compared to huge, slow-revving engines that might propel motorcycle-related transpo-devices at 60 mpg. The 750s that do exist might be counterbalanced twins or singles, designed to maximize fuel economy. These days, displacement signifies performance in the enthusiast's lexicon. In ten years the 250 might be the benchmark of speed because of an extraordinary power-to-weight ratio made possible by rapidly escalating technology in materials like carbon fiber.

Row does say that motorcycles in the next decade will probably assume their present form because that is what enthusiasts prefer. Yet the transportation market will be the key to the industry's overall health. Motorcycles like the Quasar (December, 1979), point the way to developments in weather protection, storage and fail-safe stability that could help the general population accept transpo-cycles. Perhaps the three-wheel ATC or Honda Express can be scaled up. Row says that when you look toward the future, "You have to look outside the conventional motorcycle's design envelope."

The implications of rising fuel prices and the reduction in disposable income that Honda believes will accompany it (because transportation will take a bigger bite out of every individual's budget) doesn't augur well for the off-road bike. Honda thinks the market will shrink in the next ten years. Dirt bikes will simply be less useful as the American population grows. Events like Barstow-to-Vegas will be no more practical than Carbondale-to-Peoria. Yet because there will be a large demand for recreational opportunities close to metropolitan areas, Honda sees a boom in closed-course riding, whether it's on motocross circuits or cross-country loops.

Honda believes dirt bikes will "change in virtually every way" during the Eighties. Row cites weight reduction and suspension refinement as the priorities. Plastic will be especially important, for while its production is tied to petroleum at the moment, materials technology might permit it to be manufactured synthetically. Meanwhile, suspension is the ultimate frontier. Motocross suspension will be applied across the board as people are more willing to pay for it. It will offer better traction, tire adhesion, and it will respond to terrain much more sensitively.

Four-stroke engines are going to be Honda's choice for motivating dirt bikes, especially as the EPA chokes off the two-stroke. In any case, Row asserts, it will be more economical to produce a full line of off-road four-stroke engines than a mixture of two- and four-stroke motors. And since the four-stroke engine should no longer be disproportionately more expensive than the rest of the motorcycle, there will be fewer compromises in the overall design of four-stroke dirt bikes. Indeed, Honda admits that the XR500 could get motocross suspension just as soon as enough people become willing to pay for it. Summing up the intentions of Honda's off-road engineers, Row notes, "If your thumper weighed 180 pounds, was fuel efficient and kept its rear wheel on the ground at *all* times, do you think you would like it?"

For all this wide-eyed future-think, Honda is nevertheless wedded to the reciprocating internal-combustion engine for the next decade. Row says, "The Eighties will not see alternate propulsion, hopefully not from Honda, in any case." It's the drawbacks of the car with its four wheels, big passenger compartment and heavy weight that have inspired a frantic search for alternatives, he says. As far as the internal-combustion engine is concerned, "It has not reached its limits in efficiency, emissions cleanliness and performance." The application of computer-controlled ignition and carburetion—because of affordable electronic microprocessor technology—could yield enormous benefits.

Though Honda will stick with the Otto-cycle engine, it expects tremendous refinements. Liquid cooling will promote longer intervals between oil changes. Hydraulic lifters will reduce valvetrain maintenance (but lower redlines in the process). And the Honda NR500 GP racer incorporates many new features, especially cooling techniques, that Honda says could appear on its motorcycles as soon as 1982. Turbocharging also is a likely possibility in Honda's view. Yet Honda believes that fuel injection, the obvious choice for the next step in engine development, will be too expensive for widespread use during the Eighties—despite the fact that Honda's RCB endurance racing bikes adopted fuel injection for the 1979 racing season.

For all its new ideas, Honda believes the future lies in refinement, not reformulation. As Row tells it, the four-cylinder engine is already at the outer limits of complexity. Rather than adopt rotary engines, vee-fours or square-fours to get smoother performance, Honda believes it's more sensible to refine current inline fours, twins and singles.

In the Eighties, Honda feels confident it can rely on expertise already acquired in long experience with the four-stroke engine to insure the motorcycle's future. But while formerly two-stroke oriented companies like Kawasaki, Suzuki and Yamaha catch up, Honda believes that it can devote its corporate energy to locating a new audience prepared to abandon that old-time four-wheel religion for a new spirit of transportation. ●

Six-speed Hawk joins CBX and CB750F in Honda's Euro-styled caravan

But longer and lower CB900 shaftie leads the way into an Americanized future.

Continued

• Kawasaki built its reputation in the Seventies upon the success of the Z-1. It believes the next decade also will reward the Z-1's primary virtues—reliable performance and plenty of convenience features. Kawasaki's representatives believe that the pure transportation motorcycle has no more future in the Eighties than crude high-performance bikes like the 1969 Kawasaki Mach III.

Kawasaki's Vice President of Sales, Chuck Larsen, explains his reservations about motorcycle transportation this way: "If you look at Europe, which has a longer tradition of motorcycles than we do, there's no huge transportation market." Larsen thinks only a gasoline shortage, not just a series of price increases, would stimulate significant interest in the motorcycle as basic transportation. In addition, he foresees one crucial problem for any manufacturer attempting to compete with the car. "As soon as you start to look like an automobile," he says, "you're going to be regulated by the government like one." He concludes by saying simply, "We're a recreational product."

In Kawasaki's view, the future lies in extracting more performance from smaller and more fuel-efficient motorcycles. Misao Yurikusa, Kawasaki's Manager of Research and Development, notes that motorcycles will have to respond to higher prices for materials as well as higher prices for fuel. So the mid-range market "is where things are going to happen," as Larsen puts it. One person at the helm of a motorcycle larger than 650cc soon will seem as out of place as one person driving a Lincoln Continental. Larsen says motorcyclists will accept this trend, "since the great majority of riders don't care about the number of cc's as long as the motorcycle looks right."

Aside from smaller engines with more performance potential, both Larsen and Yurikusa cite simplicity as a major factor in future motorcycle design. Engines will have fewer carburetors and cylinders, and it won't be unusual for a four-cylinder engine to have two two-barrel carburetors in the near future. As far as Yurikusa is concerned, liquid cooling, automatic and ten-speed transmissions each are interesting developments and certainly have a place in the future, but he doubts that their complexity will earn them many devotees. Yurikusa also objects to the 16-valve cylinder head on these same grounds, for he says it simply requires "too many materials, too much mechanism and too much adjustment."

Yet Kawasaki's skepticism of complex technology doesn't mean that the firm expects motorcycle design to stagnate. For example, rubber belt final drive—rumored to be nearing production at both Kawasaki and Harley-Davidson—offers a major step toward less maintenance and greater simplicity. Belt drive smoothes the engine's power pulses, reduces drivetrain lash, requires no messy oil and needs no maintenance. Yurikusa seems to believe that belt drive could play as important a role in motorcycling as it did 75 years ago because it's more reliable than a chain and can now be made as efficient, too. Meanwhile, Kawasaki is working to cut the cost of producing shaft drive by reducing the number of components. Chain drive will also be available during the Eighties, but perhaps only for traditionalists who enjoy its maintenance-intensive aspects.

Like Yamaha, Kawasaki regards fuel injection as an important development for the new decade, despite its complexity. The use of fuel injection is connected to the new breed of smaller engines, since it delivers better throttle response—the feeling of acceleration—than carburetors. Also, fuel injection can be "computer-controlled," as Yurikusa puts it, to deliver better fuel efficiency, as well as assuring EPA-pleasing tamper-proof carburetion. Larsen says that "right now, fuel injection is just a matter of expense. Once you build enough motorcycles with it, the cost comes down."

Cost concerns Kawasaki as deeply in off-road motorcycle design as it does in street-bike design. For example, Larsen reports that as soon as dual-purpose bikes can offer a cheaper price as well as the latest technology, the dual-purpose market will snap out of its slump. Like Yamaha, Kawasaki believes the lowly dual-purpose motorcycle will experience a revival as soon as fuel prices discourage four-wheel-drive enthusiasts and four-wheel transportation in general, because people will need economical transportation to off-road riding areas. In the near future, Larsen believes, "we'll see more development (for this market) in tires. Right now tires are the limiting factor."

The cash price of enthusiasm on the motocross track also concerns Kawasaki. It expects that motocross will continue to become more popular, and the company will participate on a large scale as its Lincoln, Nebraska plant absorbs full responsibility for off-road bike production (for 1980 Lincoln will assemble all Kawasaki dirt bikes but for the KX125 and KDX175). Producing dirt bikes in America has a significant impact on price because plastic is cheaper to buy here and aluminum is cheaper to produce. But Larsen still worries about the ramifications of such developments as liquid-cooling (which the AMA has approved for 1980 competition). "If we all go to water cooling," he says, "we're going to get hurt." Younger riders have become unable to afford new 125 technology every year, which means motocross has slowly been strangling itself by the roots. He continues, "From the long-range perspective, changing price has made the demography older because only they can afford the price. And that's a bad deal."

Beyond simple cost-consciousness,

New KX125 with Uni-Trak proves refinement can lie in innovation.

Yet KZ1300 represents the outer limits of complexity for complexity's sake.

INTO THE EIGHTIES:

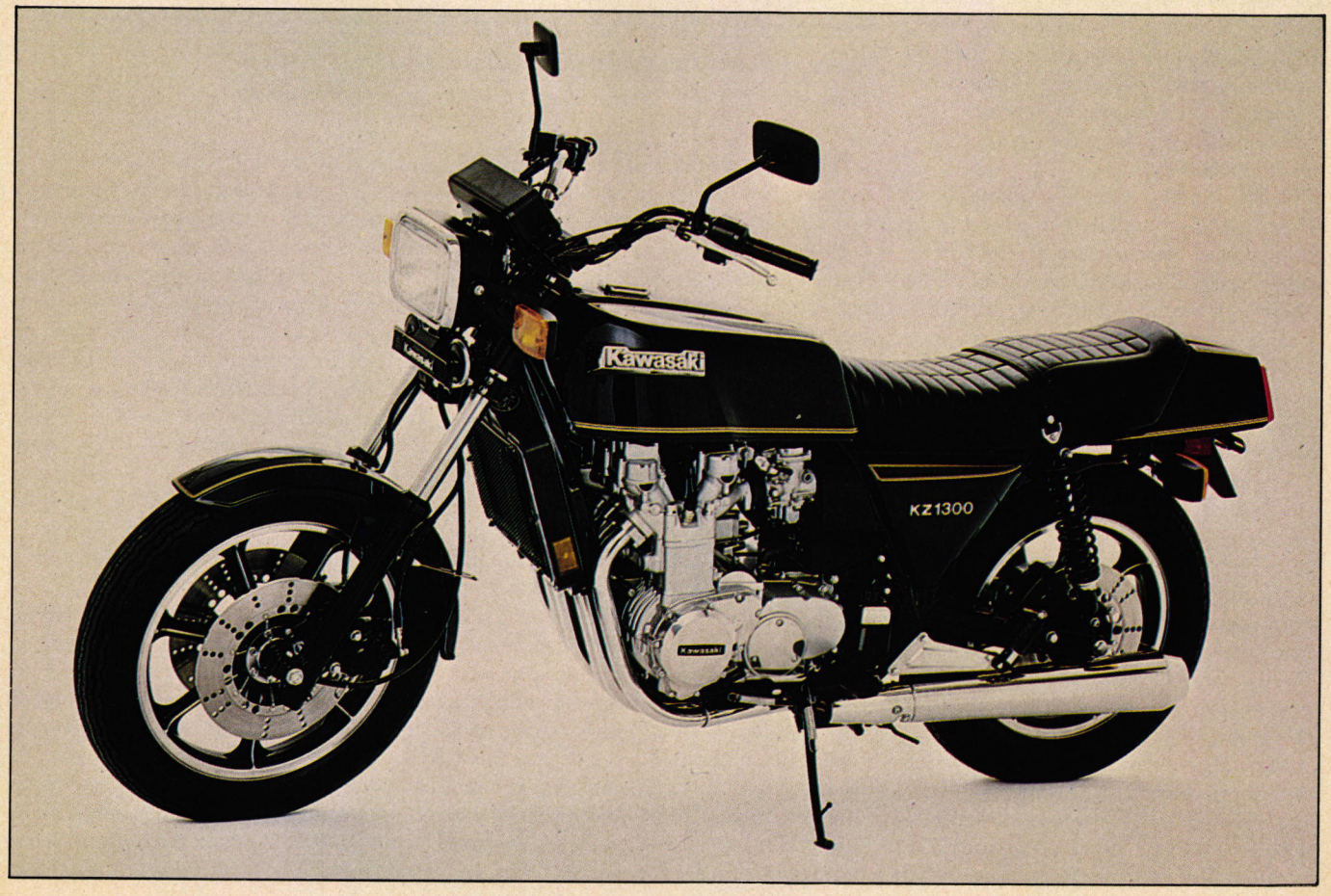
Kawasaki

Building for the future with the reputation of the Z-1.

Yurikusa believes off-road bikes will have to combine good suspension with a low seat height. Kawasaki has already decided that refinement rather than just longer travel should be a priority, as evidenced by its Uni-Trak rear suspension. Kawasaki also seems committed to the two-stroke engine, simply because it produces more horsepower per pound than a four-stroke. Even so, the two-stroke will endure only as long as the EPA permits. Once the EPA throttles down the two-stroke's performance to where it's only equivalent to a four-stroke, then, as Larsen comments, "We'll make four-strokes, since that's what a lot of customers want anyway."

Yamaha made market research popular with its Specials and now all of the manufacturers have recognized its importance. Kawasaki is no different, for Larsen notes that motorcycles in the next decade will be targeted much more precisely to the preferences of their potential owners, despite the fact that fewer models will probably be produced. He notes that the demand for 1000cc touring bikes only has been recognized recently by the manufacturers. And more market research is the key to similar successes. In addition, Larsen explains, Kawasaki will have to pay less attention to fulfilling its own engineering dreams. "Kawasaki Motors Corporation is part of a large industrial corporation called Kawasaki Heavy Industries. So KMC can't afford to sit on the edge of the industry any longer or KHI will get tired. So we can't build something just because we want to build it. We have to build what the customer wants," he says. Larsen also points out that Kawasaki's aggressive but belated entry into serious off-road machinery represents part of its effort to become a larger part of the motorcycle market by offering a full line of models.

Kawasaki doesn't expect too many surprises during the next decade. Alternative powerplants require an investment in time and materials that is too costly. Kawasaki does expect new fuels to appear soon, and since part of the motorcycle's rationale depends on using the cheapest fuel available, Kawasaki is already experimenting in this area (gasohol apparently offers good performance at the expense of more engine heat). But on the whole, Kawasaki seems to regard radical innovations as unnecessary. Reducing complexity and cost while increasing fuel efficiency is the goal, and to do that, Larsen says, "We just have to be a little smarter." ●



Continued

• Suzuki's Director of Advertising Keith Van Harte admits that small-displacement motorcycles will become more popular in the Eighties. He even suggests that Eurobred 250s, like Suzuki's own eight-valve twin, could be introduced to the United States in the near future. Van Harte also allows that middleweight motorcycles will play a larger role in the next ten years as lighter weight and better engine performance make then faster rides. But he's placing his bet on high-performance motorcycles to remain as important to the riders of the next decade as they were to those of the last. Sensible transportation just doesn't make the top of his list of priorities.

"We shouldn't kid ourselves that the U.S. will ever turn away from automobile transportation," he says bluntly. "Suzuki feels that motorcycling is going to be primarily a sport market." You cannot overestimate the impact of the motorcycle's problems, he continues. "First, the motorcycle isn't an easy product for a car driver to orient to." Also, as the motorcycle buyer becomes older and more affluent into the first half of the Eighties (because only he will be able to afford bikes), he will be less likely to accept a lack of weather protection in his primary transportation.

So when Van Harte peers into the next decade, he sees a continuation of the enthusiast market, although he imagines that ultra-large bikes like the Kawasaki KZ1300 will prove to be a dead end. High-performance will still quicken the pulse of Americans. In addition, the path to high-performance will be paved with refinement, not revolution.

Geoff Mazon, Suzuki's Manager of Technical Service, also finds evolution to be the most logical path to the future. While he claims to have no insight into the plans of Suzuki's engineers in Hamamatsu, he does have a firm grasp on significant developments in motorcycle engineering. And he finds most of them to be simple refinements that have powerful consequences in performance.

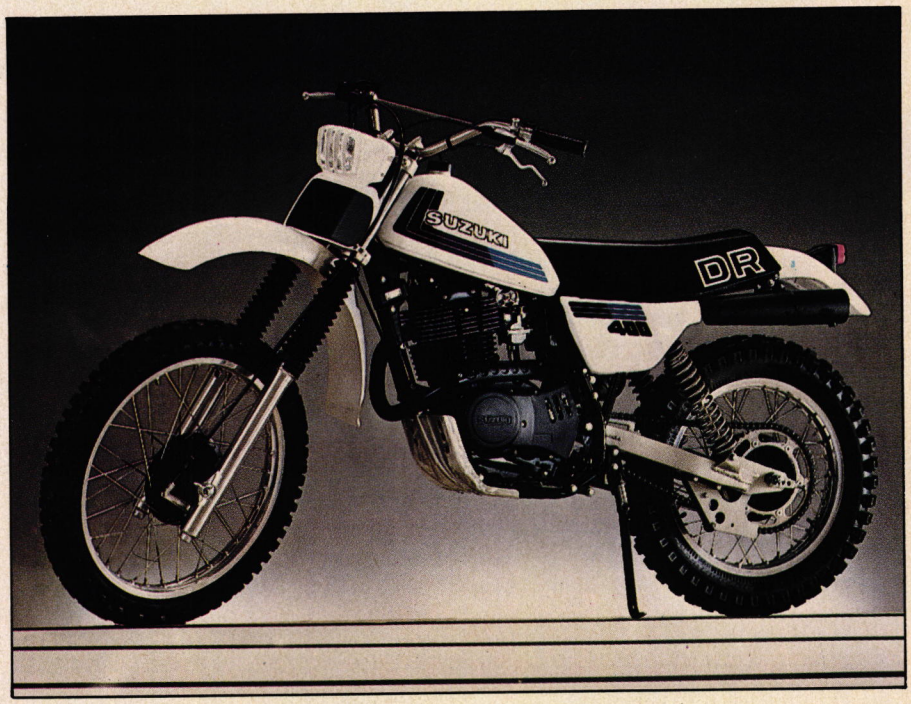
For example, Mazon cites the way that automotive engineers discovered that lean-burn engines could improve emissions and fuel efficiency while simultaneously improving performance. "A lean-burn engine—that is, one with an air–fuel mixture less than the theoretically perfect 15.1:1—can actually give you a better-running engine, with better performance, less carbon deposits, less oil contamination."

Mazon believes electronic micro-processors are the next step in engine technology, for "computer-controlled" carburetion can combine fuel efficiency with high performance. As a matter of fact, Mazon believes the controversy over fuel injection versus carburetion is irrelevant, for "the choice between injection or carburetion is a good question, because one doesn't have any advantages over the other." Automobile engineers already have created variable-venturi carburetors capable of metering fuel just as precisely as fuel injection with less expense and less complication. "I don't see a major shift away from carburetors," Mazon claims. "Maybe different carburetors, but fuel injection will be built for just a few bikes to make them sell better, not perform better."

As Suzuki sees it, one of the most important trends of the moment isn't technology but the specialization of each manufacturer's model lineup. Suzuki itself has 39 models for 1980 versus 30 just a year ago. Specializing the functions of various models is important to sustain the volume of the overall market by keeping every rider happy, Van Harte explains. The new 16-valve GS1100's real significance doesn't lie in huge sales numbers. Rather, the high-tech engine and suspension demonstrate the lengths a manufacturer will go to fulfill the fantasies of just one market segment.

Van Harte believes that monitoring sales rather than forecasting the future might be the most logical way to develop new motorcycles. In the past, Suzuki has relied upon the flexibility of its engineers in order to follow market trends, for as Van Harte says, "The Japanese can be anyplace they want to be to meet the market." The way in which Suzuki's L-models went from the drawing boards to the production line in less than a year illustrates this approach.

Sophistication and specialization point the way toward the future of the off-road motorcycle as well. Van Harte offers the rise of the playbike, which affords fairly sophisticated technology for inexpensive recreation, as an example. Meanwhile, hard-core bikes like the new PE400 will continue to endure because they, like the GS1100, reward the enthusiast's appreciation of uncompromising performance.



Four-stroke DR400 specializes in off-road recreation

Maxi-tech GS1100 promises an endless summer for speed freaks.

The motocross field, meanwhile, will not become appreciable more expensive than it is now, in Suzuki's view. But Van Harte still doesn't expect to encounter much resistance to the escalating prices of 125cc MX bikes, for example. "As long as our 125 is a winner, people will buy it," he says. Even so, he emphasizes (as does Kawasaki's Chuck Larsen) that 125-class motocross might not be the root of the sport after all. Mini-motocross, as the recent batch of trick 80s and 50s indicates, plays a larger role.

Hard-core off-road bikes will continue to revolve around the two-stroke engine, Mazon asserts. Innovations like Suzuki's Twin Swirl Combustion Chamber might improve the power of the four-stroke, but that engine still has a power-to-weight handicap compared to the two-stroke-motor. And even at the outer limits of performance, a four-stroke engine must incorporate elaborate technology to stay on an

INTO THE EIGHTIES:

Suzuki

Sporting riders hold the balance of power.

equal footing with the two-stroke, as the poor performance of the Honda NR500 GP bike eloquently shows. Sure, he says, "some people will sacrifice a little competitive edge for four-stroke fun and its sound," but there's lots of technology available to keep the two-stroke around.

Innovation is a powerful word in motorcycle design these days. Even Mazon notes, "There's been more interest in advancing motorcycle technology in the last three years than there was in the past 15." Because so much development can be done by computer program instead of physical prototypes, the progression of a new design from drawing board to production line is far faster and cheaper than it used to be. Even so, both Mazon and Van Harte believe that no radical changes lie in store for the motorcycle in the next decade.

As an illustration of the problems involved in adopting radical technology, Mazon points out carbon fiber, which can be used to construct very strong yet extremely lightweight frames, engine cases and even connecting rods. But carbon fiber is far too expensive to use on a large scale. Experience with magnesium and titanium has already demonstrated that new materials must be both readily available and cheap to be used in products like motorcycles. And when it comes to things like alternate powerplants, Suzuki comments that its experience with the RE5 showed that public acceptence, not just better performance, is the real key.

Traditionally, Suzuki has focused on sound production engineering and left the development of new concepts to other manufacturers. Both Van Harte and Mazon believe Suzuki will continue to follow this course of action. Moreover, they think it is a definite advantage. Making things better has been Suzuki's strongpoint, making common things uncommonly well. And the Eighties, they posit, will reward the kind of smart engineering that helped Suzuki learn that the secret to making the GS1000 engine lighter than a GS750's, lay in "paring away inches instead of chopping away pounds," as Mazon says.

The future holds no secrets as far as Suzuki seems to be concerned. Simple things like good metallurgy and sound design will insure the success of the air-cooled, overhead-cam, transverse-four engine. As evidence, Mazon holds up the example of the 1980 GS550, which he claims is not only cleaner than the pre-EPA 1977 model, but is quicker, faster and gets 10 more mpg as well. Apparently, Suzuki isn't worried about making sport bikes respond to the exigencies of the Eighties. •

Continued

INTO THE EIGHTIES:

Yamaha

Lure them closer with economy, turn them on with speed.

Four-stroke TT250 with monoshock, potential replacement for the Ford Bronco

Revised XS850 gets bigger, but meanwhile America thinks smaller.

• When Yamaha peers into its crystal ball, it sees motorcycle showrooms overrun with people on the verge of purchasing their first motorcycle. Yet this new lump of potential customers will not be any different from the current crowd of showroom browsers. The pretext of their visit to the local Yamaha dealership will be a search for more economical transportation, but they soon will fall into one of the traditional slots created for motorcycle enthusiasts, whether it's touring or dirt-bashing.

As near as Ed Burke, Yamaha's Motorcycle Product Manager can tell, the Eighties do not hold in store a new kind of motorcyclist strutting through his company's dealerships. There will just be more of the same kind of people. Fuel prices will of course increase motorcycle consciousness, which will generate more interest, but the bike will continue to be regarded simply as alternative transportation in

good weather, just as it is now. For as Burke states, "Most of the motorcycle-buying process already takes place on a dual-purpose premise—transportation and sport."

The only difference in the results generated by more motorcycle buyers of this ilk will be a significant increase in sales of small-displacement bikes. But as the public's experience with small bikes and mopeds becomes better—that is, as they experience better dependability—new riders will be more likely to stay in the market and gravitate to newer and bigger bikes. So Yamaha thinks the next crop of motorcyclists will evolve out of small, transpo-bike buyers (and the like), suggesting that while transportation considerations will bring more people into the motorcycle marketplace, their evolution as enthusiasts will be entirely traditional and predictable. In this sense, one important task of the Eighties will be very familiar to motorcycle dealers of the Sixties: transforming small-motorcycle buyers into *big*-motorcycle buyers.

Burke cites his notion of "true economy" as the key to unlocking the dual-purpose fantasies of the next generation of motorcycle riders. He has specific ideas about the means of producing "true economy," but they don't involve trick carburetion or vee-four engines. Instead, Burke emphasizes very basic goals. First, motorcycles must offer low initial cost, since they still will be competing against small cars for the contents of the consumer's wallet. Naturally, good fuel economy will be required, but Burke defines "good" as 90 to 100 mpg. Burke also thinks storage capacity will play an important role in integrating the motorcycle into the American public's business life. And finally, Burke proposes, the cornerstone of the motorcycle's success in the next decade will depend on whether ownership of a bike is rewarding—or at least painless. Improving the motorcycle dealer's professionalism is the key here.

Like many of the manufacturers, Yamaha backs the middleweight motorcycle as the most important piece of hardware in its lineup. Bikes like the new Yamaha 650 Four, the Kawasaki 650 and the Honda CX500 will outshine all others both in terms of sophistication and sales success. The revised new XS750—now the XS850—represents the upper limit of this middleweight range.

Burke thinks middleweight bikes offer the kind of versatility that will be necessary to lure the dual-purpose buyer into the dealership. They will combine rational fuel economy with freeway flexibility and, just as importantly, hold out the promise of weekend recreation. They will not be big nor complex. As Burke put it, "We've seen the last of motorcycles like the KZ1300 or XS Eleven." Technology must address instead the elusive combination of logical transportation and thrilling performance. After all, Burke admits, most people ride bikes to satisfy a secret lust for speed.

Yamaha's strategy for the new decade therefore is pretty straightforward. It hopes to use economical performance to get people into the market, and then keep them in with spirited performance that will turn sober-sided citizens into hard-core enthusiasts.

Burke also applies the dual-purpose theme to the off-road market. He points out that a whole bunch of people will want to mess around in the dirt in the Eighties. But fuel prices will keep them from using a motorhome or pickup truck to haul their motorcycle around. So off-road bikers will be more likely to buy a motorcycle that can fill their needs for light-duty transportation and still be able to fool around off-road. And, Burke says, new technology can produce a combination street/dirt bike with fewer compromises than ever before.

Motorcycles like the XT500 and the new monoshock XT250 are perfectly tailored to the needs of the dual-purpose buyer. "The new four-stroke dual-purpose bike is more fuel-efficient and makes a better street bike than the old two-stroke. And because they are more dependable and more maintenance-free, the market will grow," Burke comments. In this way, the significant decline in the dual-purpose market will be reversed.

More than any other manufacturer, Yamaha has identified itself with racing. Burke believes the future of racing in America during the next decade is bright. Any sport that can offer entertainment nearby to metropolitan areas will succeed because of the public's need for accessible recreational opportunities—a vision of the future that all the manufacturers share. Burke looks especially to motocross for more crowd-pleasing events. "Motocross is still on its growth curve," he says. "As it becomes more organized, it will become more popular."

Like Kawasaki's Chuck Larsen, Burke cites cost as a potentially disastrous stumbling block to the growth of the sport. In particular, he's skeptical of the AMA's recent decision to permit liquid-cooled engines in all its motocross classes next year. Although Burke says "Water cooling will have a negligible impact on big-bore motocross bikes," it could drastically increase the cost of racing at the very level that is supposed to encourage participation. As far as he is concerned, the expense of a new $1500 125 MX bike every year will bankrupt younger riders. He says, "What we need is a sanctioning body with the rule-making ability to control the sport."

As Yamaha looks into the Eighties, it believes in evolution rather than revolution. Burke believes that present engine technology will endure, partly because the feel of the engine is crucial to its recreational role and partly because many new strategies for improving its performance—like fuel injection—lie unexploited. The first step into the future, he says, should lie in making motorcycles more dependable and maintenance-free. And the first step Yamaha intends to take toward this goal involves lower service costs and the use of plug-in dynamometers for trouble-shooting.

Much of Yamaha's success in recent years has been built on its ability to predict the preferences of the marketplace, as evidenced by the enormous success of the Yamaha Specials. So it's no surprise that Burke finds market research a vital component of the Eighties. "Before now, no one was sure of what a motorcyclist did with his bike," he says. "Now a great deal of research tries to find out. Research plays a far more significant role in the creation of motorcycles than ever before, both in concept development as well as in the determination of styling directions."

Ironically, Burke doesn't believe that motorcycles will become more bland as they emphasize versatility in order to attract new riders. Instead, he holds out the promise of more single-purpose machines that will back up the front rank of middleweight entry-level bikes. "Motorcycles will become even more specialized to reach specific audiences. First you build versatility into the motorcycle, for the consumer is unsure of his preference. Then you offer him specific uses to satisfy his growing enthusiasm."

Interpreting Yamaha's notion of single-purpose through its 1980 lineup could lead you to believe that by "single-purpose," Burke simply means a specific set of options applied to a baseline model. But Burke also claims that Yamaha is willing to create entirely new models to satisfy the single-purpose criteria—and he points to the fact that Yamaha will sell its new monoshock, liquid-cooled RD350 only in Europe this year. So while Yamaha recently seems to have substituted styling for performance, it's still possible that the Eighties could bring more Yamaha motorcycles that make as powerful a statement as the XS Eleven and RD-series. ●

Continued

INTO THE EIGHTIES:

BMW

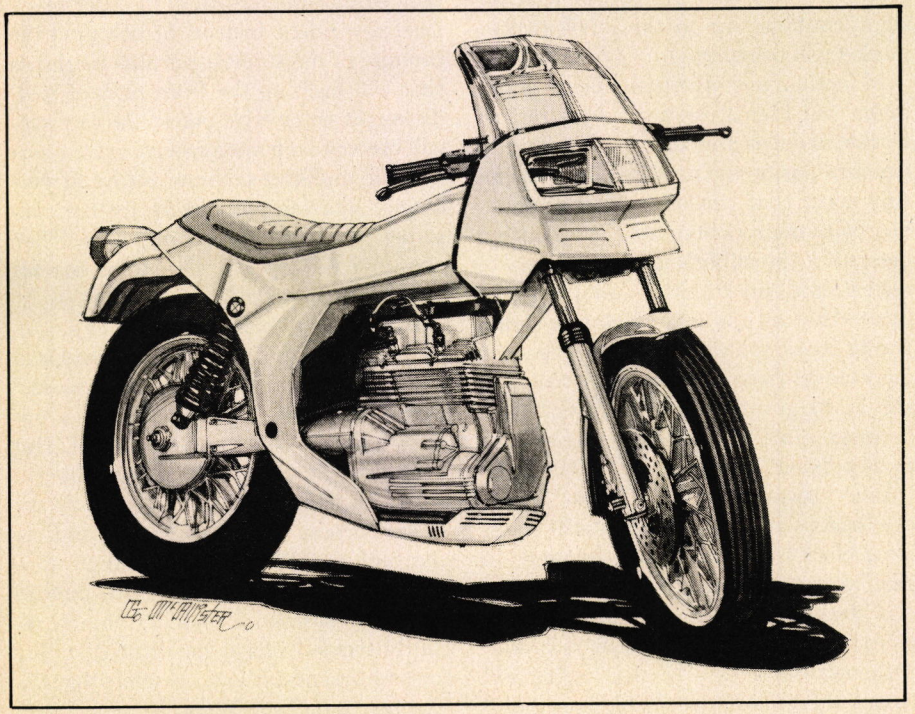
Survival demands bold thinking.

• BMW stood by politely during the Seventies while the superbike revolutionized the w: / most people thought about motorcycles. It clung to its trusty horizontally-opposed pushrod twin while other manufacturers' cylinders and overhead camshafts doubled and while their carburetors and rear tires swelled n size. Yet as recent shake s in its corporate structure indicate, l MW no longer intends to be excluded from the mainstream of motorcycling.

BMW's reliance on traditional values during the Seventies actually reflects the priorities of the Eighties. Multi-cylinder hyperbikes seemed to be a dead-end in a country where com ulsory insurance costs nearly $1000 for a n otorcycle, where every 15 miles costs you a doll of gasoline and where the $25-per-hour abor rates can separate you from $100 q cker than you can say CBX. So in the Seventies, BMW aligned itself with sophistication rather than brute power. Four-valve cylinder heads and turbocharging would keep BMW's flat-twin engine competitive on the performance front while fuel injection would reinforce its reputation for fuel-efficiency. BMW devoted its main energies, however, to the relationship between man and motorcycle. As former BMW Chief Designer Hans Muth put it, the rider has been a slave to his bike too long: "The rider was forgotten while the motorcycle was designed and redesigned solely for performance."

During 1978 BMW took steps to channel all motorcycle designs toward sophistication. First, it introduced the new smaller BMW sport bikes, the R45 and R65. Then it masterminded an agreement between German motorcycle manufacturers and importers to halt the sale of bikes with more than 100 horsepower. It also published an advertisement that called six-cylinder bikes a nightmare.

But the final element of BMW's 1978 campaign for sophistication might be as important to the company's future as the massive 1979 personnel shuffle in which BMW Motorrad Managing Director Rudolf Graf von der Schulenburg and Chief Designer Hans Muth were replaced. At the '78 Cologne Motorcycle Show, BMW introduced its modular motorcycle concept, a one-size-fits-all motorcycle.



Modular motorcycle in sporting togs

Concentrating on the option list instead of the hardware.

The modular bike carries option-think to its extreme. The core of the bike is a backbone frame fitted with a shaft-drive, longitudinally-mounted inline twin-cylinder engine. The seat and tank configuration can be fitted with long-travel suspension, knobby tires and a combination headlight/numberplate for Six Days competition. Or you can attach a full fairing and saddlebags for touring. Or you can fit low bars and a quarter-fairing to accomodate the sporting rider. In addition to offering the kind of specialization appropriate to the sophisticated rider, a modular motorcycle also can be cheap to produce, an important consideration in light of the traditionally hefty BMW price-tag.

It's widely thought that the personnel changeover of 1979 put the company firmly in the hands of the futurists. Certainly the successive appearance of the small sport twins, the modular bike, an over-the-counter BMW ISDT bike and rumors of both inline twin- and three-cylinder engines indicate a BMW assault on the motorcycle marketplace of the Eighties. One central fact can be gleaned from BMW's recent past and applied to its future. About $75 million has been spent on a new BMW factory in Berlin and $25 million has been earmarked for new product development. At the moment, BMW motorcycles don't sell well-enough to justify those figures. Clearly something radical must be done to improve BMW's viability in the marketplace in order to utilize its production capacity.

Ironically, it's the forward-thinking comments of former Chief Designer Hans Muth that provide insight into BMW's long-range plans for the Eighties. Though he cannot be said to speak for BMW now, in 1978 he commented, "I'd like to see BMW-built motorcycles with a high technology, but for a totally new way of motorcycling. We've been looking at motorcycling in the same way for years and years, but we need a totally new impulse, and I'd like to see BMW provide it."

In the short term, the firm certainly will perpetuate its venerable flat-twin. And as Harley-Davidson claims, the twin's fuel efficiency and lack of complexity could prove to be an advantage for the Eighties. But in the long term, new concepts will be required to maximize the potential of the new $75 million factory, and like Honda, BMW might find those concepts in something more than just a new engine. The modular bike points in that direction. As it turns out, the Eighties could prove BMW right—perhaps the relationship of man-to-bike is more important than abstract notions of pure performance. ●

INTO THE EIGHTIES:

Harley-Davidson

Vacation-land discovers the touring bike.

• It is fashionable in some quarters to question the long-term health of Harley-Davidson. During the Seventies, Harley's clientele grew older while the rest of the motorcycle industry capitalized on the rage for speed shown by American young people. Yet there are no unhappy faces at Harley-Davidson as the Eighties begin. In fact, to hear William Dutcher, Harley-Davidson public relations man and spokesman for John Davidson, tell it, a mature audience is the very thing to have for the next ten years.

Harley-Davidson bases its conclusions upon the fact that there will be a 32-percent growth in the 30–49 year-old age group in the next 10 years, accompanied by a small decline in the under-30 age group. This lump in America's population profile is caused by the aging of people born during the World War II baby boom, a generation that has had an enormous impact on American consumerism. Harley's best guess is that the typical hyperbike buyer will be harder to find during the Eighties, and that more mature people will turn to motorcycle touring as their leisure time and disposable income increase.

Dutcher discounts the notion of motorcycles becoming more than just an alternate transportation device in the new decade. He says, "Harley-Davidson envisions remaining motorcycles primarily recreational devices through the Eighties." Safety factors, weather protection and America's attachment to the automobile all discourage widespread awareness of the bike's very real fuel efficiency.

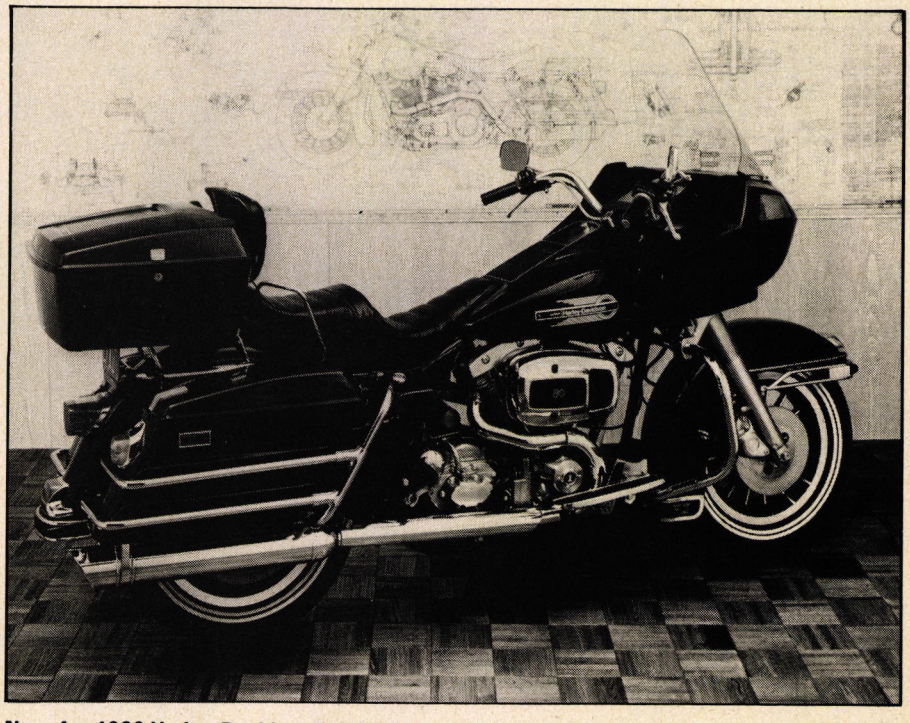
More factors than simply a larger pool of mature Americans leads Harley to expect a growth in the touring field. Travel has become America's No. 1 industry, yet as fuel prices escalate, travel by airplane, motorhome and automobile will become almost prohibitive. Motorcycles will become the accepted means of vacation travel, and Harley-Davidson joins Yamaha in believing that more resorts within 400 miles of population centers will be built to meet this trend. Harley-Davidson's first new model of the Eighties, the FLT 1340 Tour Glide, reflects its commitment to touring. New engine mounts isolate the pulsations of the big twin to decrease rider fatigue while the chain runs in an oil bath for longer life. Meanwhile, the fairing offers an array of gauges and idiot lights guaranteed to make a touring rider grin.

The continuation of the motorcycle's recreational role in the next ten years doesn't necessarily mean it won't change in some important ways. Ironically, Harley expects other manufacturers to build large-displacement twins to capitalize on the engine's fuel efficiency and lack of complexity. Camshaft profiles will grow milder and compression ratios will be reduced. Plain bearings will gain wider acceptence than roller bearings because they are quieter. Harley also expects a major thrust toward new fuel delivery systems.

Of all the motorcycle manufacturers, Harley-Davidson feels the hot breath of government regulatory agencies most intensely. The firm doesn't complain of an inability to meet the standards, only of the time and energy required to fulfill the requirements. Dutcher suggests that the situation will not improve in the near future "because the general public—unlike the motorcycling public—hasn't reached the saturation point in government intervention." So 25 percent of H-D's engineering budget will probably continue to be devoted to noise- and air-emissions standards, certification and labeling.

Because its customers demand it, the venerable vee-twin will probably live on for a while yet in the Harley-Davidson line-up. But it will change in important ways. Rubber engine mounts and five-speed gearboxes represent only two refinements. Rubber final drive could reduce the driveline lash from the engine and make it significantly quieter as well. Other engine-quietening strategies like insulating shrouds are also under study. Liquid cooling potentially could be extremely useful because the cooling jackets would not only act as sound insulation, the tighter piston clearance permitted could reduce noise emissions as well. Yet for all these changes that Harley foresees, alternative fuel sources are not among them. Dutcher reports that they "are not likely to be commercially attractive. Because of the motorcycle's inherent fuel efficiency, it will be able to use fossil fuels long after cars must look somewhere else for fuel."

Dutcher points out that Harley-Davidson has traditionally increased its market a little bit at a time—he notes with pride that during 1979 H-D had its 12th consecutive record sales year—and so may not be as vulnerable to the changing trends of the future as other motorcycle companies. In short, Harley-Davidson feels that its name is still synonymous with "motorcycle" in America and the connection promises success into the Eighties. ●



New-for-1980 Harley-Davidson FLT 1340 Tour Glide

With five speeds and rubber-mounted vee-twin, a giant step along the Glide Path.

Continued

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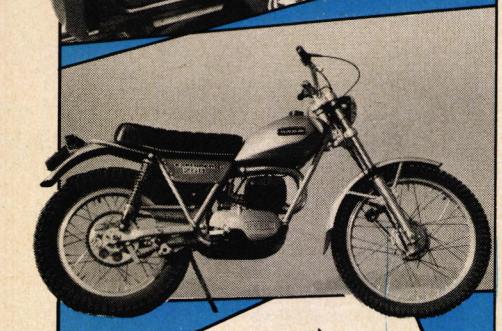
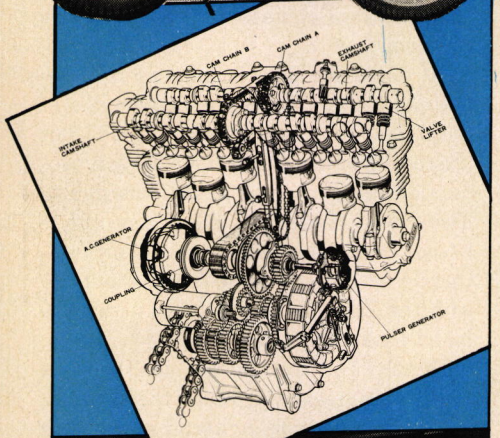
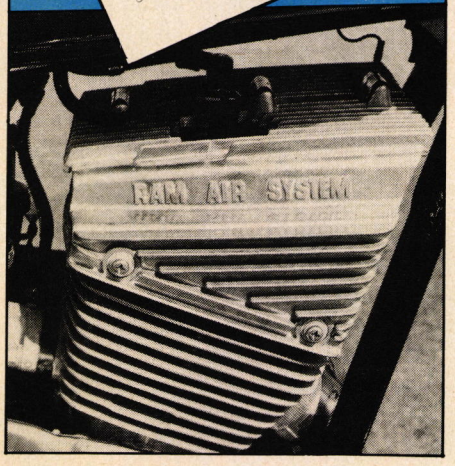
OUT OF THE SEVENTIES:

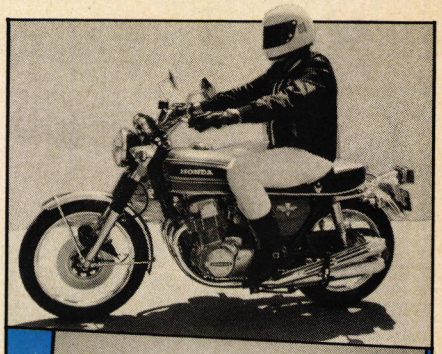
1970–1980: That Was The Decade That Was

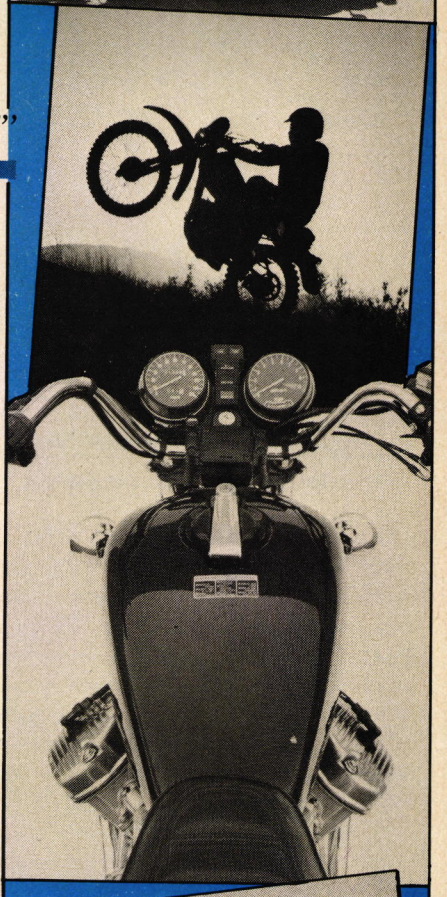
Like the cigarette ads say, "You've come a long way, baby!"

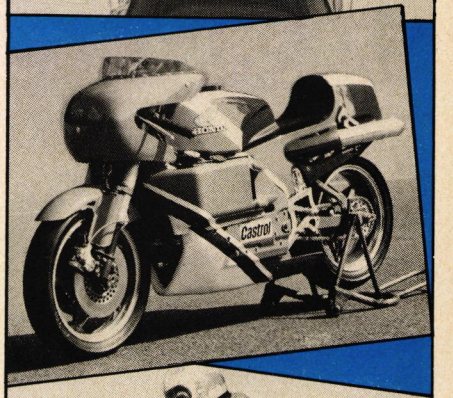


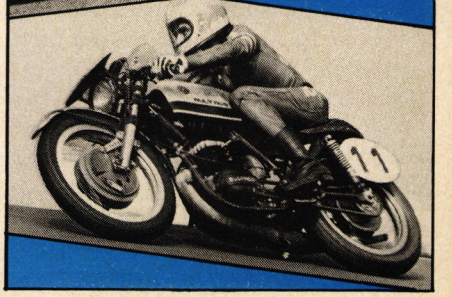












• We're all very lucky. Not to be motorcycle enthusiasts, since that's something we do by choice, not chance. No, we're lucky because we're motorcyclists right *now*, during the most exciting period in the history of the sport. Twenty years from now, when moto-historians are celebrating the beginning of the 21st century by recalling motorcycling's progress through the 20th, they'll talk about the great strides forward in technology and performance during the Seventies and remember it as one of the most significant decades of all.

It's not hard to understand why. Just think back, if you can, to the machines that roamed the planet ten years ago. Think about what they looked like, the way they ran and handled, and how long they lasted, then compare them to what is commonplace today in 1980. It doesn't take much imagination to see that we've come a long, long way in those ten short years—maybe, in fact, further than in any other comparable period.

Of course, it could be that you weren't yet into motorcycling's fold back then. Or perhaps your memory's just a bit foggy on the subject of ten-year-old motorcycles. Or, as unlikely as it sounds, maybe you think that 11-second superbikes, 12-inch-travel motocrossers and fine-handling, dead-reliable motorcycles of all sorts have been around all along. If so, you'll be surprised to learn that they haven't.

Whatever the case, whether you're an old pro or a rank novice, we thought you might enjoy taking a brief look back at the motorcycling Decade That Was before leaping into the one That's About To Be. It's important stuff to know about, too, this history business, especially if you harbor any desire to be a motorcycle "expert." After all, before you can expect to know where anything is, you first have to find out where it's *been*.

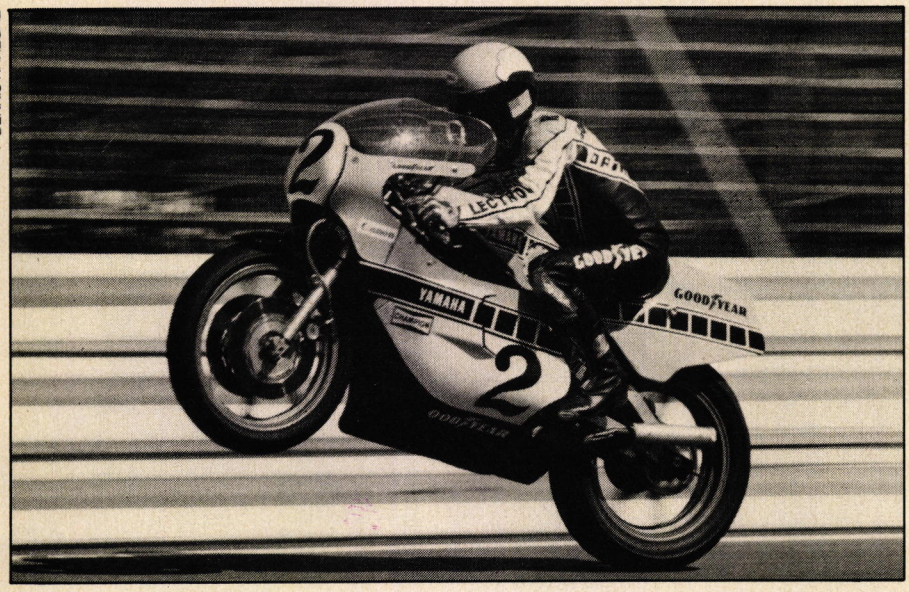
Continued

THAT WAS THE DECADE THAT WAS:

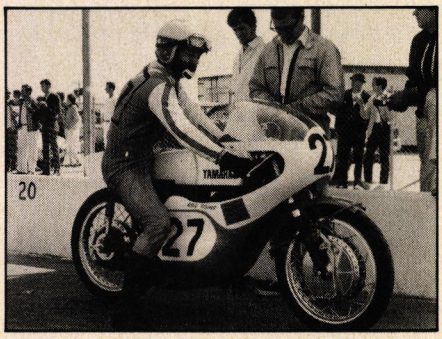
Roadracers, 1970–1980

Yamahas win the battles, two-strokes win the war.

DENNIS KANEGAE



1980 Yamaha 750cc TZ750 with Kenny Roberts



1970 Yamaha 250cc TD2 with Rod Gould

• Basically, only one thing needs to be said about roadracing in the Seventies: Yamaha owned it. Sure, when the decade opened, factories like MV, Norton, BSA, Triumph, Moto-Villa and the other Japanese were building, selling and fielding racers of their own. But gradually, through a process of attrition, each has been either unseated or buried by the red-and-white bikes with tuning forks on the tank.

What were your alternatives as a novice racer in 1970? You could race in the production classes, or you could buy one of a very few ready-to-race bikes. People like Ron Grant would tweak a Suzuki 250 into something raceable, and Kawasaki's racing division would sell you a 500cc H1R or 250/350 twin—*if* you were Somebody. Or you could buy an aging Aermacchi/H-D Sprint. Or—*or* you could just go down to your local Yamaha dealer and place an order for a 250cc TD2 or 350cc TR2, depending on whether you had $2500 or $3500 to spend. That got you a bike *sans* fairing and a spares kit, along with Yokohama racing tires (known as "rim-protectors") and the air-cooled two-stroke, piston-port twin that was, by 1970, capable of pumping out over 45 or 60 hp, depending on displacement. And then, after you discovered that a mistake in jetting could cost you a set of pistons, or that the cranks were good for 90 hours and no more, you could go back to that same Yamaha dealer and actually order the parts, confidently expecting them to arrive before the Millenium.

That the results sheets of the Seventies were filled all over the world with Yamahas is no surprise, then. Yamaha actually built bikes in quantity for and cared about the privateer racer, something no other company could claim then or now.

The machines were not perfect, of course. Despite the fact that the machines were built on a hand-assembled basis by carefully chosen *mama-sans*, they were only as good as their designs. The RD56 derivation of the TD2 frame assured it of handling far better than its wobbly predecessors, but it took the advent of the TZ250 water-pumpers in 1973 to make the bikes not just fast but reliable.

The motorcycle that jerked Yamaha out of the teacup zone was the TZ700 four, built to race in the FIM series originally constructed to allow the fast-fading four-strokes to race without the humiliation of being smoked off by 350cc Yamahas—which was then happening all over the world. After refinements, the 700 became the Ultimate Customer Racer: capable of all-day racing at speeds up to 180 mph (but fundamentally very simple), even its initial pricetag of over $5000 (1975) didn't keep people from pounding on Yamaha's door.

Recently, revived factory involvement in Gran Prix roadracing has led Suzuki, Kawasaki and Honda back onto the grid. But in the last half of the decade, only Honda has dipped tentatively back into the customer-racer market—with the MT125R—and already Yamaha has countered, retiring the venerable TA125 twin for the new TZ125 water-pumper.

No discussion of the decade could fail to mention the attempts by the British to counter Yamaha's dominance of the sport with a concurrent dominance of their own in production racing. Norton's sublime 1970–72 Commando Production Racers, Triumph's Trident Racers and a gaggle of others (mostly from Ducati, Laverda and Moto Guzzi) gave a lot of racers a lot of fine rides. But in the end, big-inch production racing evolved into Superbike racing (which undoubtedly will be the most important class of the Eighties), and the Japanese eventually dominated it too, although Yamaha's only real successes in that class have come in Australia and New Zealand.

No doubt the lack of tuning forks in Superbike winners circles gives a great deal of pleasure to those who despise Yamaha, but the results of most 350- and 410-class production races must be as discouraging to Yamahaters. Indeed, as many a neophyte has learned in the ferocious 410-class wars, there's no better way to learn about life with the Yamaha GP twin than with a Yamaha production twin.

Yamaha's ad agencies through the years have made great fuss over all the victories, going so far as rechristening Daytona Beach "Yamaha Beach." It's hard to know what effect on Yamaha's street-bike sales all the years of counter-top racers have resulted in, and maybe even Yamaha's leadership stopped trying to equate racing victories with sales long ago, recognizing what every TD/TR/TZ racer has known for a long time: Without Yamaha, roadracing in the Seventies would have been left to the small, specialized factories and home-builders. And a lot of Americans might never have therefore dragged their knees—including, perhaps, a certain Modesto, California resident named K. Roberts.

—Steve Thompson

THAT WAS THE DECADE THAT WAS:

Street Bikes, 1970–1980

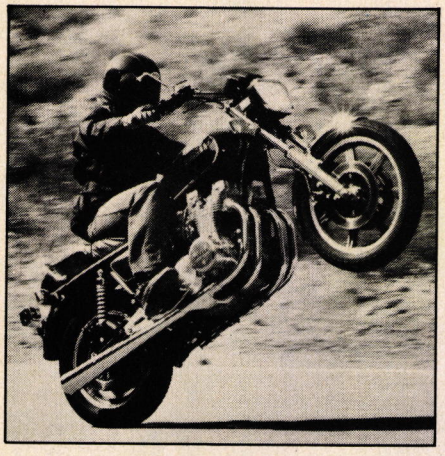
Longer, heavier, faster—superbike says it all.

• In 1970, the big news in street bikes was still the Honda Four. At 750cc, it was considered a Big Bike, a sophisticated motorcycle only an expert could fully appreciate. Competition for its position as King of the Hill was there, of course, in the form of BSA Rocket-3s, Triumph Tridents, Norton Commandos and the like, but the magic of an overhead-cam, smooth-as-silk Four was too much for Americans, and the decade can really therefore be said to have begun with the CB750K1.

We take for granted today that a big bike will weigh over 550 pounds, that it will do the quarter-mile in less than or right at 12 seconds, that it will run effortlessly for as many tens of thousands of miles as we choose. But ten years ago, the big bikes we lived with were 750s whose performance profiles and reliability were only fractionally as good as today's 900–1200cc roadburners. Conversely, the penalty of all this bullet-proof hyperbiking has been weight and size. We routinely ride bikes like the mighty Kawasaki KZ1300 Six, forgetting that a decade ago, the Münch Mammut—a 1200cc NSU-car-engined shaft-driven hybrid—was considered a monstrous freak by most American enthusiasts. Even the 450-pound heft of the heaviest 750 twins and triples of the time drew fire from riders and testers alike, who had grown up with the lightweight small-displacement Japanese bikes of the Sixties.

What changed all the attitudes was Touring. Not lower-case touring which means a nice ride with a knapsack and Bronson cap (remember him?), but full-on, see-the-USA, CB-radioed, tour-trunked, saddlebagged, floorboarded, wife-packing *Touring*. Somehow, America's collective motorcycle consciousness rationalized out-and-out berserkobikes like the ground-breaking 903cc Kawasaki Z-1 as reasonable Touring mounts.

That you could indeed Tour with the mighty Zee was acknowledged even at its debut in 1972. But what nobody expected—aside perhaps from the futurists at the Big Four—was that the Zee would suddenly make the Honda Four look, well, puny; that people who had been happily booming down the Interstates in 1972 on their K2s would suddenly think of themselves as second-class riders; or that the loonies who bought the explosive Kawasaki 750cc H2 triple would also cast doubting looks on their heretofore invincible superbikes. And least of all did the hardest of the hard-core Tourers—the BMW elite—expect the displacement war that engulfed the manufacturers to result, in 1975, in the 1000cc technomarvelous Honda Gold Wing. After BMW unveiled its carefully reworked Second Generation bikes in 1969–70, it no doubt expected to control those hard-core riders as it had done for decades. But the allure—and, despite early problems, the performance—of the Gold Wing absolutely devastated the American Tour Freaks. One look at its liquid-cooled, overhead-cammed, opposed-four with shaft sold them, and 'Wings with every conceivable kind of accessory and gadget began appearing on American streets, owned by Tourers whose tours could encompass as little as a daily ride to the office.

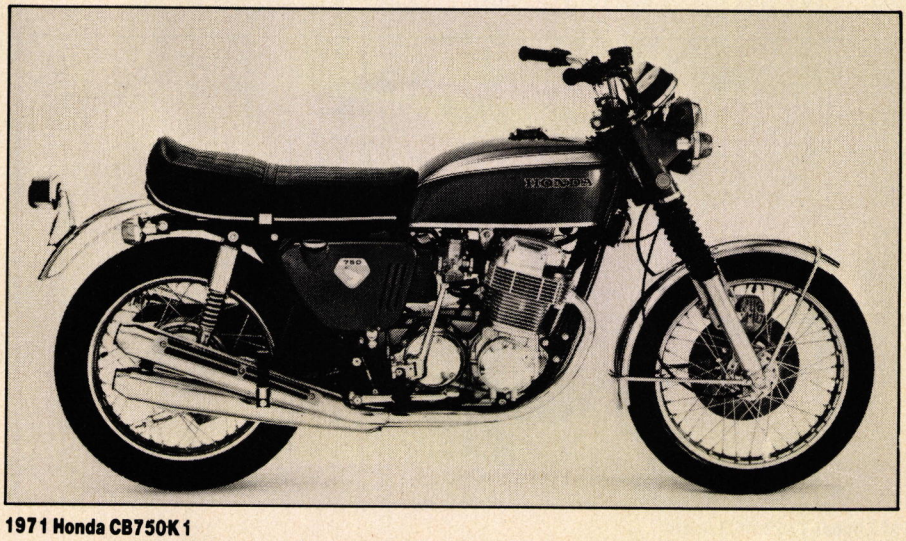


1978 Yamaha XS1100E

The cumulative effect of these changes has led to some notable changes in American street life. Not only, for instance, does America now think of 650cc fours as "little" bikes; not only has the combined effort of the Japanese Big Four all but eliminated European bikes from the street scene; not only have we all come to expect and pay prices higher by at least a factor of two for each cc of displacement in 1980 than in 1970; not only have the machines themselves improved in reliability and safety all out of recognition by 1970 standards, but in addition to all the above, street motorcycling has also survived countless attempts by various groups to force it into channels other than what the majority desires.

The composite of all these changes is visible in yet another Honda Four opening yet another decade. It is the CB900, a four-valve, DOHC fire-breather suitable by way of its "Americanized" styling, shaft drive and two-speed transfer case for all the roles that have emerged during the Seventies. You can tour on it, profile down the boulevard on it, knock down breathtaking ETs on it, drag iron on Scratcher Lane on it, and, thanks to its two-range gearbox, squeeze every last drop of fuel to good advantage.

No one is sure whether this composite bike, made up of the trends of the Seventies, will actually work in the showroom. No one knows whether the blurring of roles it displays will offend or attract Americans. But that, at least, signifies that one aspect of American street riders hasn't changed a whit since 1970. You're used to bigger, faster, more complicated and more expensive bikes now, but you're still unpredictable. —*Steve Thompson*



1971 Honda CB750K1

Continued

THAT WAS THE DECADE THAT WAS:

Motocrossers, 1970–1980

Down-to-earth racing revolutionized by space-age technology.

• The Seventies may have been the heyday of multi-cylinder Superbikes and 11-second quarter-miles, but technologically, the last decade belonged to motocross. It was, after all, America's "discovery" of motocross just prior to the Seventies that spurred new interest in the sport. And many of the developments forged in the crucible of American-style motocross were so significant that related ideas soon surfaced on other kinds of dirt machines. Ultimately, even street bikes began to adopt features that had their roots firmly planted in the motocross dirt of the Seventies.

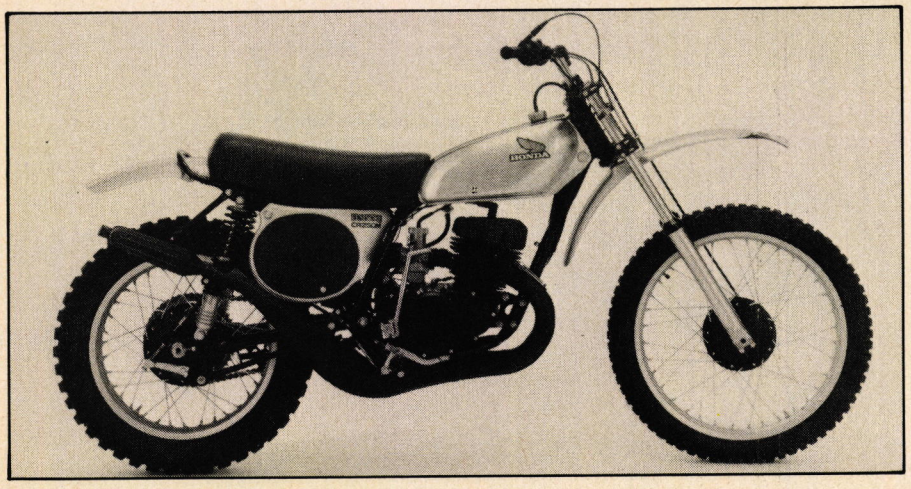
Most of those advances in moto-technology were made during the last seven years of the decade, after Honda's CR250 Elsinore was loosed upon the land early in 1973. That bike was the most significant motocrosser of the Seventies, for it broke new ground in performance, packaging and even marketing. Which is not to say that everything about the Elsinore was necessarily *right*, but that it provoked a wealth of fresh thinking about how a motocross bike ought to be designed.

As high-tech as the Elsinore may have been, though, it was merely the appetizer for the motocross entrée of the Seventies, The Great Suspension Race. Starting in 1970 with about six inches of front wheel travel and three to four inches in the rear, motocross bikes finished the decade facing open ridicule if they couldn't stand tall on 10 to 12 inches at *both* ends. And the improvement was not just in quality. Innovations such as air suspension, nitrogen charging, remote reservoirs and adjustable damping, to name a few, gave stock motocross bikes a quality of suspension equalled only on the world's finest hand-built racing cars and motorcycles.

Maico is credited with having started the suspension revolution with leading-axle forks back in the late Sixties and forward-mount shocks in the early Seventies. It took a while for the others to catch on, but suspension technology moved forward with lightspeed once they did. Hakan Andersson won the 1973 250cc world championship on one of Yamaha's very first mono-shockers, and sophisticated long-travel suspensions soon became mandatory on all motocrossers.

At first, the long-travel concept was fraught with problems such as overworked shocks, floppy forks and fractured frames. And riders had to learn how to cope with the handling peculiarities that resulted from combining lengthy wheel travel with a tall center of gravity.

1979 Suzuki RM125N



1973 Honda CR250M Elsinore

Once those problems got ironed out, though, long-travel suspensions revolutionized motocross handling and opened up new opportunities for the engine designers. Until that time, MX bikes had always worked best with a wide, torquey power curve that could help the short rear suspension maintain good traction. That idle-to-redline powerband also allowed the rider to lighten the front end at will just by snapping the throttle open, thus preventing horrendous front-wheel impacts on big bumps that could cause a loss of control. But with long travel, the rider could hit those same bumps and hardly feel them. And the longer rear travel kept the tire digging into the terrain much more often and with greater effectiveness. So once the engine designers didn't have to be locked into retaining a mile-wide powerband, they were able to experiment more freely and further the science of two-stroke horsepower generation.

From that point, motocross development shifted into top gear. Stock MX bikes grew dramatically faster and acquired ever-escalating handling skills with each passing model year, evolving into true world-class racing machines. Yet because of the liberal use of expensive alloys and resilient plastics, they didn't gain any weight and became more reliable and durable than ever before. That's why most modern showroom-stock motocrossers are now so much like the megabuck factory bikes that you almost have to be a pro-caliber rider or tuner to appreciate the differences. But despite their high level of competence, motocrossers continue to be affordable, allowing virtually anyone to own a real professional-level racing bike.

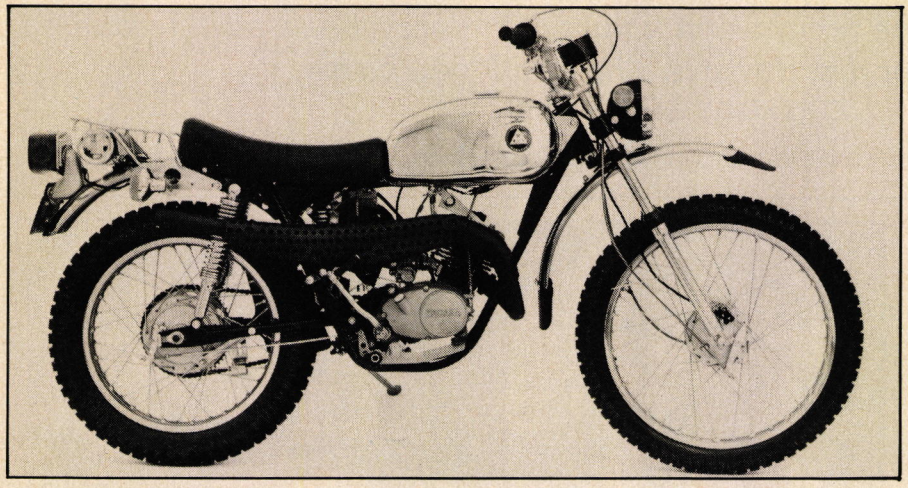
If somehow you could transport a modern motocross machine back ten years in time and race it against the bikes of that era, it would win with embarrassing ease. In fact, a contemporary 125cc motocrosser (a class that in 1970 wasn't even recognized in national and international competition) probably would clean house in the *Open* class back then.

No one knows for sure what the next decade will bring, or whether there will be two-strokes in your MX future or four. But because motocross enthusiasts have become the most demanding, exacting motorcyclists on earth, you can rest assured that whatever it is, it will be exciting, competent and decidedly better than anything you've ever seen. —*Paul Dean*

THAT WAS THE DECADE THAT WAS:

Enduros and Dirt Bikes, 1970–1980

Better trailblazing through modern motocross.



1975 Hodaka Ace 100

• The Seventies did more for dirt riding than just legitimize American-style motocross; they also brought us the widest variety of specialized off-road motorcycles ever built. No matter what your favorite kind of dirt riding during the last decade—motocross, enduros, ISDT, trials, desert, cow-trailing or just putt-putting around the campground—there were special models built expressly to suit your special needs.

Whatever their specialties, though, all off-road motorcycles of the Seventies were heavily influenced by new technology continually developed in motocross. Engines got faster, suspensions grew longer and frames became more race-like, together giving overall dirt-bike performance an enormous boost. By decade's end, for example, dual-purpose bikes, traditionally regarded as clumsy off-road machinery, had grown almost as competent in the dirt as full-house enduro bikes had been in 1970. Meanwhile, modern enduro machines were blessed with even better handling than that offered by the motocross bikes of ten years ago.

Competitive enduro machinery was available only from European companies until Honda built Japan's first real enduro bikes, the MR175 in 1975 and MR250 in 1976. Before that time, every Japanese-made "enduro" had been one of those infamous dual-purpose bikes that couldn't be competitive without extensive modification, if at all. So during the first half of the decade, serious enduro riders relied on Huskys, Pentons, Bultacos and OSSAs to get them through the woods on time.

1979 Honda XR500

The Honda MRs subsequently paved the way for today's brand of Japanese-built two-stroke enduro—the Yamaha ITs, Suzuki PEs and Kawasaki KDXs—all of which are formulated differently than their 1970 counterparts. Enduro bikes ten years ago favored low-speed, trials-like off-road performance. Today's machines essentially are motocrossers with lights. The engine tuning of today's enduro bike may be a smidgen milder, the gear ratios more widely spaced and the suspension strokes shorter than a hard-core motocross bike; and some enduro scooters are configured to favor the WFO requirements of ISDT-style riding more than the lower-speed conditions that prevail in woodsy enduro events. But peel away the tool bag and the large-capacity gas tank and you'll find the soul of a red-hot motocross machine.

Although two-stroke enduros enjoy healthy sales these days, Honda has stopped making them, offering only the XR four-stroke off-road singles. In Honda's opinion, the future of off-road riding has to do with valves and cams, and so it has put all of its non-motocross, dirt-riding eggs into that four-stroke basket.

Honda also prefers to call its XRs "playbikes" rather than competitive enduros. That's not such a bad idea, since motorcycles with that designation seem to be growing in popularity. Most off-road bikes spend most of their time being ridden just for fun, anyway, regardless of their intended specialty. Once the manufacturers figured that out, they had no qualms about building motorcycles that had no express purpose other than to be fun-loving, do-everything dirt bikes.

Without any specific usage to serve as a design guide, playbikes emerged in all sorts of configurations during the Seventies. Some were detuned motocrossers and some closely resembled enduros, while others were little more than dual-purpose machines minus street-legal gear. Probably the most memorable playbike of the Seventies was Yamaha's TT500 four-stroke thumper that achieved instant success by being so versatile, so powerful and so much fun to ride. Its impact has been felt industry-wide.

Playbikes weren't limited to four-strokers during the last ten years, however, since non-serious two-stroke dirt bikes have been around for a while. Hodakas were prominent two-stroke playbikes of the early Seventies (as well as of the Sixties). Kawasaki's KE models and Suzuki's new DS lineup are more-recent examples. In virtually every case, though, the design parameters for these bikes have been largely the same: high fun, low cost and to hell with specialization.

The whole story of dirt riding in the Seventies can be summed up just by the way all bikes became better, stronger and faster. They are so far superior to their 1970 counterparts that to say they are "good" would be to damn them with faint praise. They are *great*. Though the dirt-bike engineers tell us further sophistication lies ahead, it's difficult even to conceive of better motorcycles. Only the bikes that dreams are made of could lie ahead.

—Paul Dean

Continued

LOOK OUT BEHIND YOU:

Winners And Losers, The Seventies

Those wonderful years we who lived them called the Seventies are gone, never to return. In the spirit of nothing sacred something gained, we point out a few of the zeniths and nadirs of motorcycling's past decade. If the boot fits, throw it. The envelopes, please.

EDITED BY LARRY WORKS

MOST SIGNIFICANT MOTORCYCLE OF THE SEVENTIES

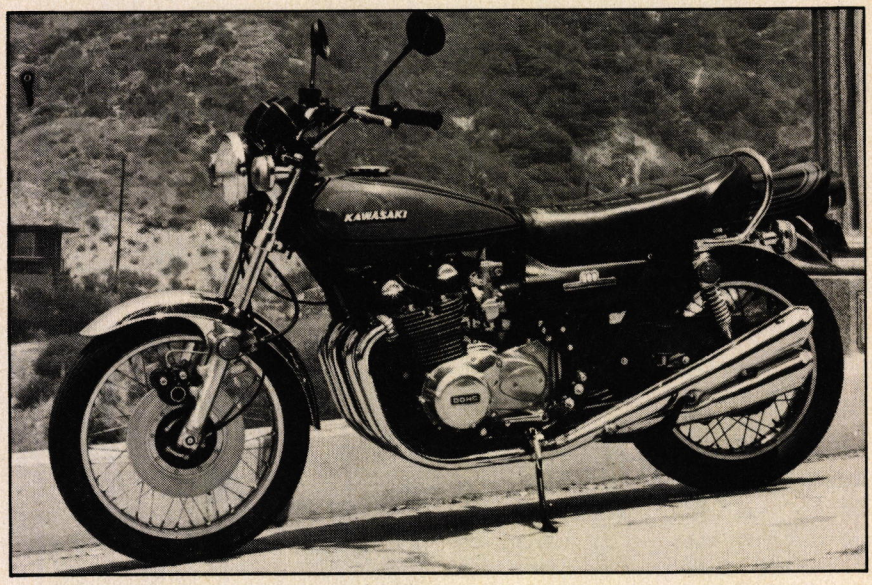
• Kawasaki Z-1. Introduced in 1972, it was the first hyperbike capable of 12-second quarter-miles, 130-mph top speed and real-world longevity. The Z created an as-yet unsated demand in America for ever-more-powerful motorcycles.

MOST STOLEN MOTORCYCLE OF THE SEVENTIES

• Kawasaki Z-1.

MOTORCYCLE MOST RESPONSIBLE FOR SKYROCKETING INSURANCE RATES

• Kawasaki Z-1.



FOOLS-RUSH-IN GOLD MEDAL

• This award goes to the Japanese motorcycle industry for building no fewer than seven different observed trials machines in 1974–75, in anticipation of trials becoming the Next Great Participant Sport. It didn't. FOOLS-RUSH-IN SILVER VASE goes to all the general-interest and street-only motorcycle magazines that forecast an impending café bike explosion.

BUILD NOW/PLAN LATER NO-LOVE-LOST CUP, POSTHUMOUS

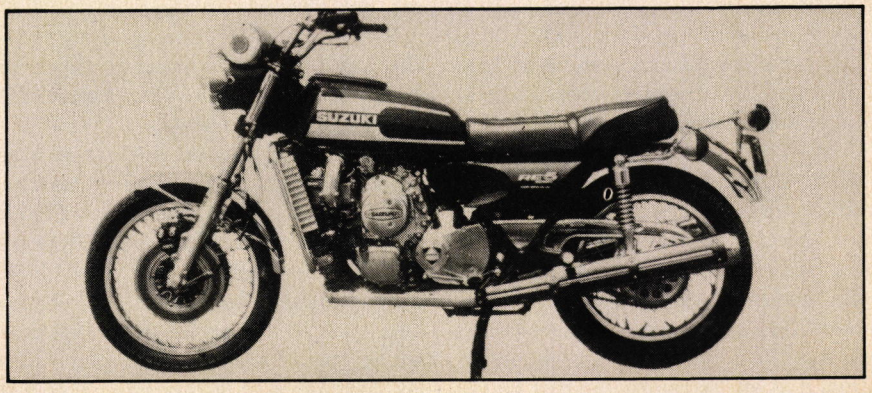
• Yamaha takes this one for the late and not-much-lamented 1973 SC500 two-stroke single. Not only was the bike reasonably awful, no one—including Yamaha's American marketing squad—knew why it had been built nor what it was supposed to do. Fortunately, it did nothing very well and quickly disappeared.

LONG LIVE THE CZAR

• Impressed by the success of dictators in other sports—Pete Rozelle of the NFL, NASCAR's Bill France and John Bishop of IMSA—the American Motorcyclist Association hired its own sports tyrant, Doug Mockett, in 1978. After Mockett promised to haul AMA racing into the Modern Age, a mixed bag of promoters and racers got him fired less than one year later.

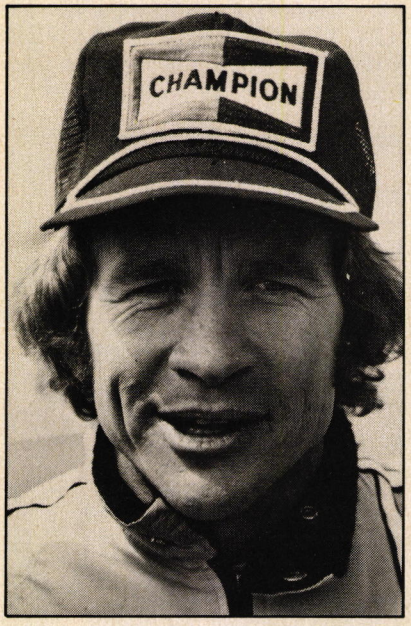
GREATEST TECHNICAL ACHIEVEMENT, PRODUCTION MOTORCYCLES

• Suzuki RE-5 Rotary, 1975. A technical masterpiece and a marketing disaster because it didn't look, act or sound like a Z-1 or a Triumph Bonneville. An Honorable Mention for this award goes to the 1979 Kawasaki KZ1300, which combines more complexity that any other motorcycle to date with elephantine weight, and yet still sloughs off the disadvantages of both to perform as an impressive Interstate-eater.



BIGGEST LOSER OF THE RACING SEVENTIES

• Awarded to Gary Nixon, who, despite the assistance of Suzuki and Irv Kanemoto, spent the entire decade breaking his arms and legs.



MOST TERRIFYING RACE BIKE OF THE DECADE

• Awarded to the TZ700-engined flat-tracker that Kel Carruthers built for Kenny Roberts. The bike followed the example of an Erv Kanemoto flattracker powered by a Suzuki roadrace engine that was built for Gary Nixon. Nixon fell off a lot, but Roberts won a single event with the TZ700 flat-tracker, the 1976 Indy Mile. Afterwards, he pronounced the Yamaha the scariest motorcycle he'd ever ridden. Even Roberts heaved a sigh of relief when the AMA banned four-cylinder engines in flat-trackers.

MOST HATED MOTORCYCLES OF THE SEVENTIES, BY PURIST GROUP

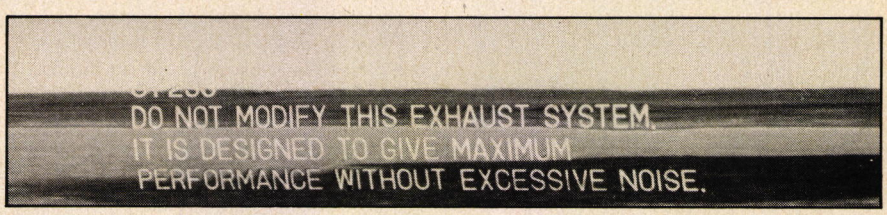
• Roadracers/café racers: any Harley-Davidson
Tourers: Kawasaki H2
Police: Kawasaki Z-1
Neighbors: any dirt bike owned by a 16-year-old kid with MX aspirations
Boulevardiers: Ducati 900SS Desmo
Fast-car drivers: any Japanese Four of 500cc or larger.
Slow-car drivers: any motorcycle

MIGHTY EIGHTH CITATION OF MERIT FOR VICTORY IN DAYLIGHT BOMBING OF EUROPE

• Kenny Roberts, World Champion, 1978–79.

MOST EGREGIOUS INNOVATION

• The so-called product-liability label, which disclaims responsibility or provides redundant or self-evident information. Honda's CBX featured no fewer than ten labels scattered about its exterior.



CARRY ON REGARDLESS, WITH SILVER CLUSTERS

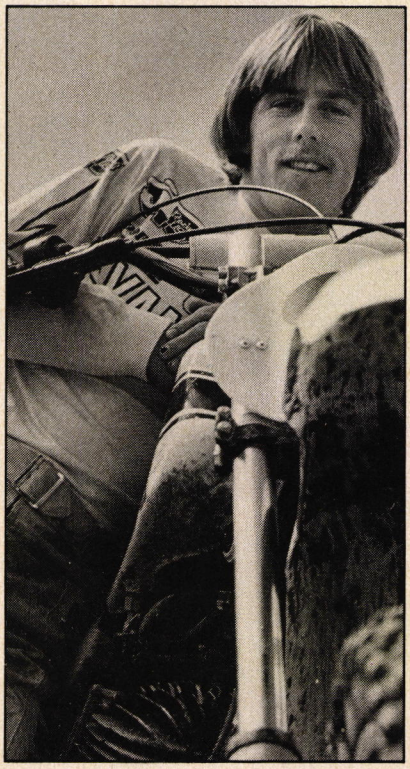
• This commemorative honor is bestowed upon the motorcycle industry of Italy, which during the Seventies generally ignored that it no longer existed. Not letting non-existence get in the way, Italy continued to build exciting motorcycles anyway.

GREATER RESTRAINT HATH NO MANUFACTURER

• This coveted prize goes to Suzuki Motor Corp., for not stealing a handle from Harley-Davidson and naming its RE-5 Rotary the Hummer.

WREATH-EVER-LOWER WRITE CROSS FOR DUMBEST AD SLOGANS OF THE PAST DECADE

• "Meet Benelli . . . the *real* machines." Runner up in this division is, "The real machine, 1972 BMW." And the Honorable Mention is, "HODAKABILITY . . . What you see is what you get . . . and more."



MOTOCROSSER OF THE DECADE

On American soil: Bob Hannah
On European dirt: Roger DeCoster

Continued

FEDERAL FEATHER FOR CONSPICUOUS MIND-CONTRACTION

• Despite a hot-and-heavy competition, the honor falls to Ms. Joan Claybrook, who almost singlehandedly took on Japan, Inc., and who, after titanic struggles, managed to get motorcycle speedometers recalibrated to show a top speed of 85 mph, thus making the world safe once again for Chevrolets.

LIFE SHOULD IMITATE ART

• In what at first appeared to be a typical Hollywood miscast, pretty-boy George Hamilton portrayed stunt-jumper Evel Knievel. Not one to let a money-making proposition elude him, Knievel later played himself in the movie "Viva Knievel." Critics agreed that Hamilton played the better Knievel.

BIGGEST CORPORATE TURNAROUND

• Suzuki garners this one for following the sales disaster of its Rotary with the RM- and GS-series wonderbikes.

FULL-DECADE RADIUS/ULNA MEMORIAL FOREARM BUILDUP AND HANDBALL SQUEEZE

• Goes to Harley-Davidson for continued use, above and beyond reason, of high-effort control levers.

PROMISE UNFULFILLED

• Awarded to Mark Brelsford, who won 1972's AMA No. 1 plate. He survived the most horrifying crash of the decade, a fiery collision at Daytona, shortly after winning the plate. The damage of the crash effectively ended his career. Brelsford raced with the No. 1 plate on his bike only twice.

MOST CONVINCING OFF-TRACK PERFORMANCE

• Given to Carter Alsop, the AMA's first female licensed professional roadracer.

LEAST CONVINCING ON-TRACK PERFORMANCE

• Given to Carter Alsop, the AMA's first female licensed professional roadracer.

CHEVY POWERGLIDE MEDALLION

• The winner is the Rokon 340 Automatic, the most persuasive example of how making one aspect of off-road riding easier can make the rest more difficult. If off-road riding were simply blasting up steep hills, we'd all be riding Rokons. It isn't and we aren't.

GOOD-GUY SPONSOR

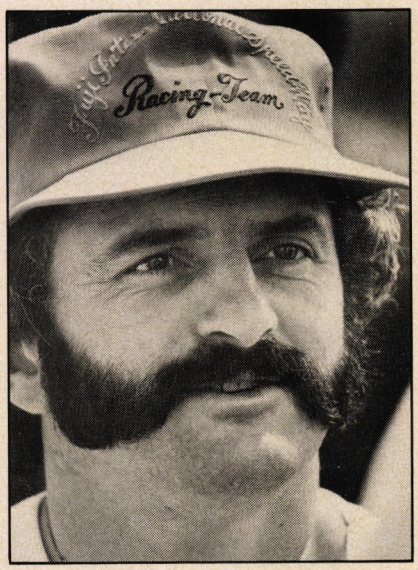
• R.J. Reynolds, backer of AMA racing since 1974.

BIGGEST LOSER OF THE SEVENTIES BASED ON AN INDIVIDUAL PERFORMANCE

• Evel Knievel, the Man Who Didn't Jump the Snake River.

BELLA ABZUG, MEET . . .

• Debbie Lawler, who did her bit for the women's movement by becoming the first famous female motorcycle jumper. She promptly blew her credentials to the wind by announcing to the press that she wore an orange bra, "for luck."



GRACE UNDER PRESSURE

• Yvon DuHamel, who in a variety of high-speed bails from assorted Kawasaki roadracers perfected the technique of the stand-up slide, simultaneously extracting a white stroker cap from his racing leathers and donning it no less than five seconds after slowing to a stop, thereby covering his bald spot.

O.B.E. (OVERTAKEN BY EVENTS) LAUREL FOR ENGINEERING GALLANTRY IN THE FACE OF FACTS

• BSA/Triumph will take this one home for struggling to design and build a pair of OHC 350cc four-stroke twins just before everyone else in the world decided to buy a 750cc four.

GREAT IDEAS IN PUBLISHING

• Rick Sieman's *Dirt Bike* magazine, which changed the reading habits of young American motorcycle enthusiasts and spawned countless imitators.

COVETED COLT/BMW GUNMETAL BLUE RIBBON

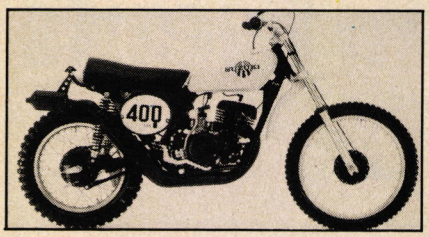
• Awarded to the 1978–79 Suzuki GS-series cold-start mechanisms.

STANDING ROOM-ONLY CRITIC'S CHOICE STATUETTE

• Awarded, by unanimous vote, to all the long-travel, high-seat motocrossers that grew up in the Seventies.

HARBINGER OF REBORN HARLEY-THINK

• This somewhat obscure and one-time-only presentation goes to Kawasaki's 1976 LTD, not for being the best factory custom, but for being the first.

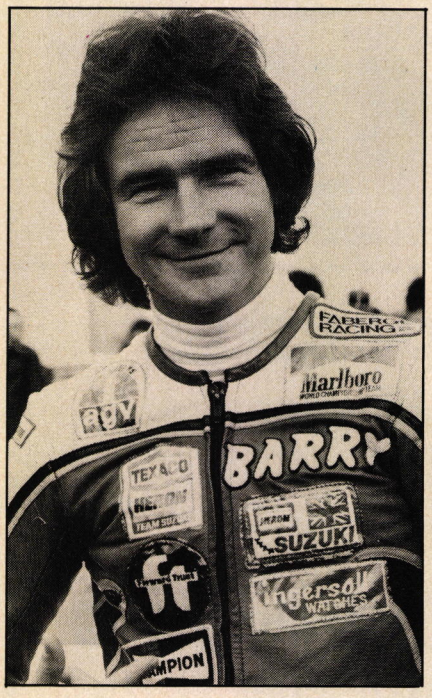


YOU-CAN'T-SEND-A-KID UP-IN-A-CRATE-LIKE-THAT DUBIOUS RACER AWARD

• In memory of the Kawasaki H2R, undoubtedly the most terrifying combination of horsepower and evil handling available across a counter anywhere, anywhen. Runner-up honors go to the Suzuki TM400 motocrosser.

CAN'T THIS WOMAN FIND A REAL JOB?

• Lynn Griffis has been the Camel Pro/Winston Pro trophy girl since it seems like forever.



HOOF IN MOUTH DEPARTMENT

• Barry Sheene pronounced that Kenny Roberts would constitute little threat to his 1978 500 cc GP roadracing title because Roberts would find the circuits too tough to learn. Roberts' crash prior to the 1979 season prompted Sheen to pontificate that Roberts would be slow returning to form. Roberts promptly won the Austrian GP. Queen Elizabeth II honored Sheene with an O.B.E. anyway, presumably for the same farsightedness that ensures the continuation of the British motorcycle industry.

RE-5 CITATION FOR CONSPICUOUS PRESENCE IN THE ABSENCE OF SALES

• Münch Mammut, Norton/Weslake roadracer, all Hodakas and Harley-Davidson two-strokes.

MOST IMPRESSIVE PERFORMANCE IN A VIRTUALLY NON-EXISTENT ROLE

• Goes to Benelli for its 1973–79 Sei. Despite years of ongoing hype about the Sei, only 17 Americans ever reported sighting one.

RACING IMPROVES THE BREED

• The Yamaha TZ700, sanctioned for competition in 1974 because the full production run of 50 bikes qualified it under AMA regulations. The street-legal version, the TX700 two-stroke four, never saw the light of day.

MOST IMPORTANT DIRT BIKER

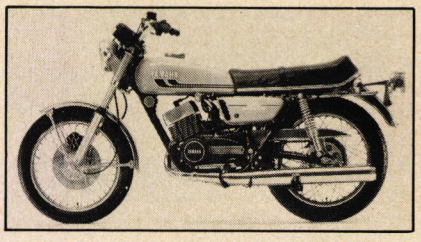
• Given to Bruce Brown, who turned his hobby into a movie called *On Any Sunday*, making Malcolm Smith a star and triggering an almost overnight explosion of dirt-bike interest.

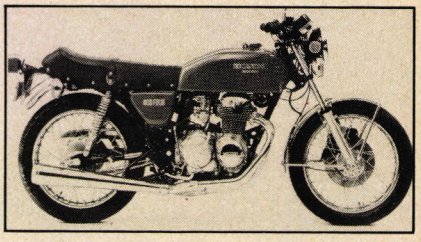
GREER GARLAND FOR THE MOST INSIPID MOVIE FEATURING MOTORCYCLES

• The winner is *Sidecar Racers*. The runner-up is any Hell's Angels Rip/Stomp production.

MOST EXCITING PRODUCTION MOTORCYCLE UNDER 400CC

• Yamaha RD350/400, all years.





THE GOOD DIE YOUNG

• Honda CB400F, 1975–77. Smooth, reliable, fast, good-handling, beautiful.

MOST BEAUTIFUL NOISE MADE BY A MOTORCYCLE

• First place goes to Triumph/BSA racing triples, 1971. Second place is awarded to Honda CBX. Third, Honda NR500, 1979.

MOST AWFUL NOISE MADE BY A MOTORCYCLE

• First place is Suzuki's for the 1975 Rotary. Second is any 125cc motocrosser up to 1976. Third goes to the 1976 Yamaha XS500. ●

BELL HELMETS

D O Motocross Nutrition Ltd.

BEL-RAY

Rocky Cycle

CHAMPION

SCOTT USA

GOODYEAR

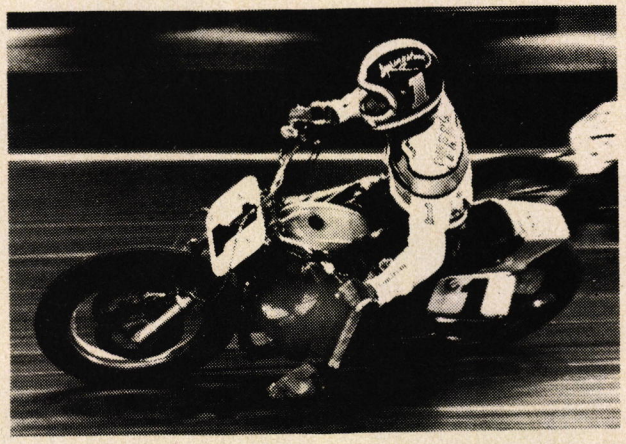
Malibu GRAND PRIX

Order Tickets Now For Super Exciting 1980 Stadium Events

Plan ahead and get the best seats to the season openers of the 1980 AMA sanctioned Supercross Series and the National Indoor Short Track and TT Motorcycle Races.

Yamaha Gold Cup Motorcycle Races

Feb. 8-9 Houston Astrodome



Tickets: $6, 7, 8 & 9. Send check or money order, plus $1 per order for handling to: Astrodome Box Office, P.O. Box 1691, Houston, TX 77001.
Credit card customers call (713) 749-9555.
Order must be received by Jan. 25, 1980.

_____ Tickets at $ _____ Each Total $ _____

Name _____
Please Print

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City _____ State _____

Zip _____ Phone _____

B

Yamaha Gold Cup Supercross

Feb. 9-10 Seattle Kingdome

General Admission - $6, Kids 12 & under $1, Reserved Seats $8, 10 & 14. (U.S. Dollars) Send self-addressed, stamped envelope and check or money order to: Fidelity Lane Ticket Office, 1622 Fourth Avenue, Seattle, Wash. 98101. Please include $.25 per order handling charge.
Orders must be received by Feb. 1, 1980.

Bay Area Supercross

Feb. 17 Oakland Coliseum

General Admission $8, Kids 12 & under $1. Reserved Seats $10 & $12.
Send self-addressed, stamped envelope and check or money order to Oakland-Alameda County Coliseum, Nimitz Frwy. & Hegenberger Rd., Oakland, CA. 94621. For further information call: (415) 635-7800.
Credit card customers call BASS at (415) 835-4342 or (408) 297-7552.
Orders must be received by Feb. 10, 1980.

_____ Tickets at $ _____ Each ☐ Seattle ☐ Oakland Total $ _____

Name _____
Please Print

Address _____

City _____

State _____ Zip _____ Phone _____

B

THE HONDA CLASSICS. A NEW CHAPTER BEGINS.

THIS CLASSIC BECOM

THE CB750K.

February 1969. The International Motorcycle Show. Gleaming in the spotlight, a revolution, a masterpiece in motorcycles. The crowds gape. The critics stare. A 750. Four cylinders. Four pipes. For the new generation of riders.

From Honda.

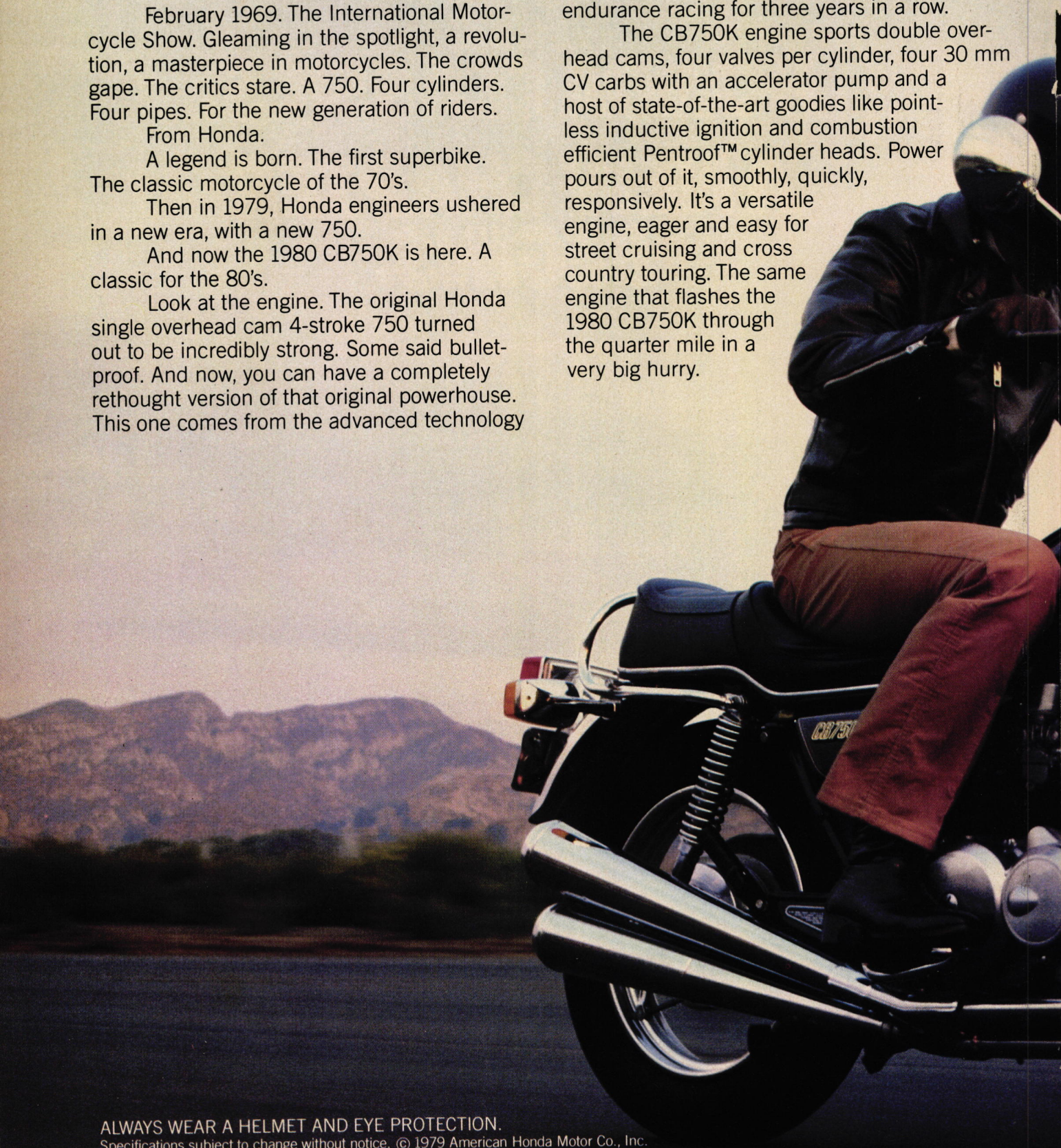
A legend is born. The first superbike. The classic motorcycle of the 70's.

Then in 1979, Honda engineers ushered in a new era, with a new 750.

And now the 1980 CB750K is here. A classic for the 80's.

Look at the engine. The original Honda single overhead cam 4-stroke 750 turned out to be incredibly strong. Some said bulletproof. And now, you can have a completely rethought version of that original powerhouse. This one comes from the advanced technology Honda developed for the RCB racers; those incredible machines that dominated European endurance racing for three years in a row.

The CB750K engine sports double overhead cams, four valves per cylinder, four 30 mm CV carbs with an accelerator pump and a host of state-of-the-art goodies like pointless inductive ignition and combustion efficient Pentroof™ cylinder heads. Power pours out of it, smoothly, quickly, responsively. It's a versatile engine, eager and easy for street cruising and cross country touring. The same engine that flashes the 1980 CB750K through the quarter mile in a very big hurry.



ALWAYS WEAR A HELMET AND EYE PROTECTION.

Specifications subject to change without notice. © 1979 American Honda Motor Co., Inc.

For a free brochure, see your Honda Dealer. Or write: American Honda Motor Co., Inc. Dept. 3194, Box 50, Gardena, California 90247.

ES A ROCKET.

In the handling department, this new motorcycle shows a decade of change as well. A sturdy double-cradle frame, needle bearing swing arm pivot, smooth front forks, and Honda's two-stage rear shocks with five spring preload settings put you in control of an agile machine that responds. Truly responds. To take you through two-lane twisties to broad, sweeping interstates. And the thoughtfully contoured plush saddle means you'll ride comfortably, as well as quickly.

Rider convenience has been carefully considered. The new CB750K's instrument panel speaks at a glance. A pushbutton handles tripmeter resets. Not far away is the choke control, fuse box and integrated ignition/fork lock. Honda's had the foresight to help your hindsight with exclusive-design vibration-resistant mirrors.

A LEGEND IN THE MAKING.

And so, while the original Honda 750 set all the standards for superbike performance, the new CB750K seems to be setting them again. Comfort. Speed. Handling. Performance. Reliability. And the deep, sweet sound of the now familiar Honda four pipes.

A contemporary classic is yours for the riding. The 1980 Honda CB750K.

HONDA

FOLLOW THE LEADER.

THIS CLASSIC BECOM

THE CB650.

Even at rest it seems alive. Poised. Shimmering. Bristling with an aura of two-wheeled greatness—past, present, and still to come. A classic.

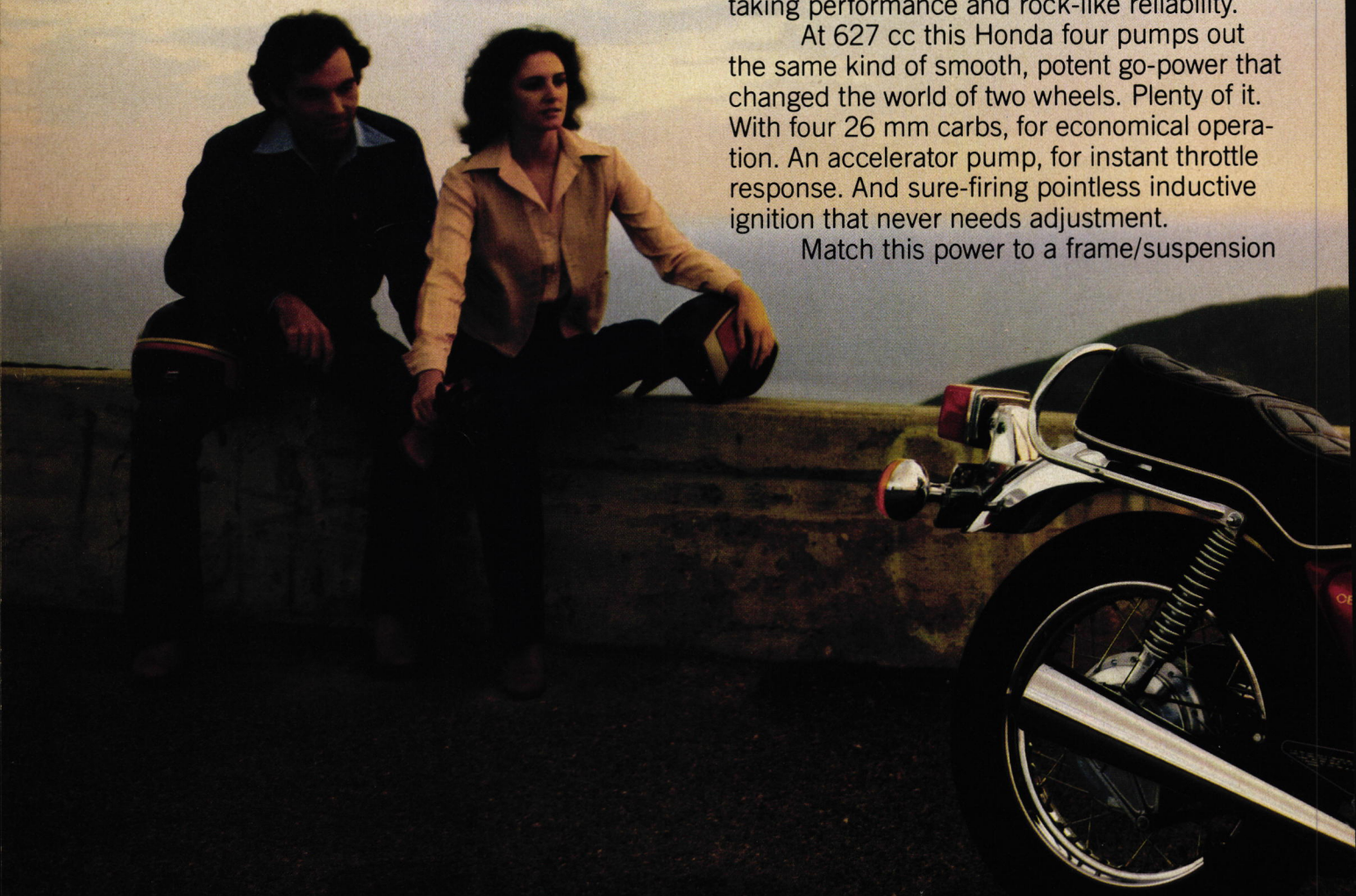
Classic simplicity. Classic proportions. Classic teardrop tank and striping. Wherever you roll, the 1980 CB650 singles you out as a rider with a sharply defined taste for traditional elegance—as well as arm-straightening performance.

One look tells the story. And that's precisely why the new CB650 will always rate more than just one look. It's got a combination of grace, gloss and guts that compels the eye. Any eye. Anywhere. Whether you're stylin' down the boulevard or unwinding some mountain road.

But they better look quick, or you'll be outtasight. The CB650's sleek, traditional styling is matched to another great tradition, one that we started—the overhead cam 4-stroke, 4-cylinder engine. An up-to-the-minute refinement of the famous Honda fours that opened new frontiers with their breath-taking performance and rock-like reliability.

At 627 cc this Honda four pumps out the same kind of smooth, potent go-power that changed the world of two wheels. Plenty of it. With four 26 mm carbs, for economical operation. An accelerator pump, for instant throttle response. And sure-firing pointless inductive ignition that never needs adjustment.

Match this power to a frame/suspension



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ES A KNOCKOUT.

package that's a lot lighter than its nearest four-cylinder competition, and you've got a new dimension in middleweight street quick. Thanks to a knockout power to weight ratio.

FEEL THE DIFFERENCE.

But stoplight-to-stoplight is only part of it. Take the CB650 out on your favorite stretch of back road and see how the rigid double-cradle frame, low-stiction forks, and two-stage shocks help you unkink the twisties. The engine is narrow, to give you outstanding cornering clearance. And there's plenty of stopping power—with a powerful front disc brake and big rear drum—to match the go.

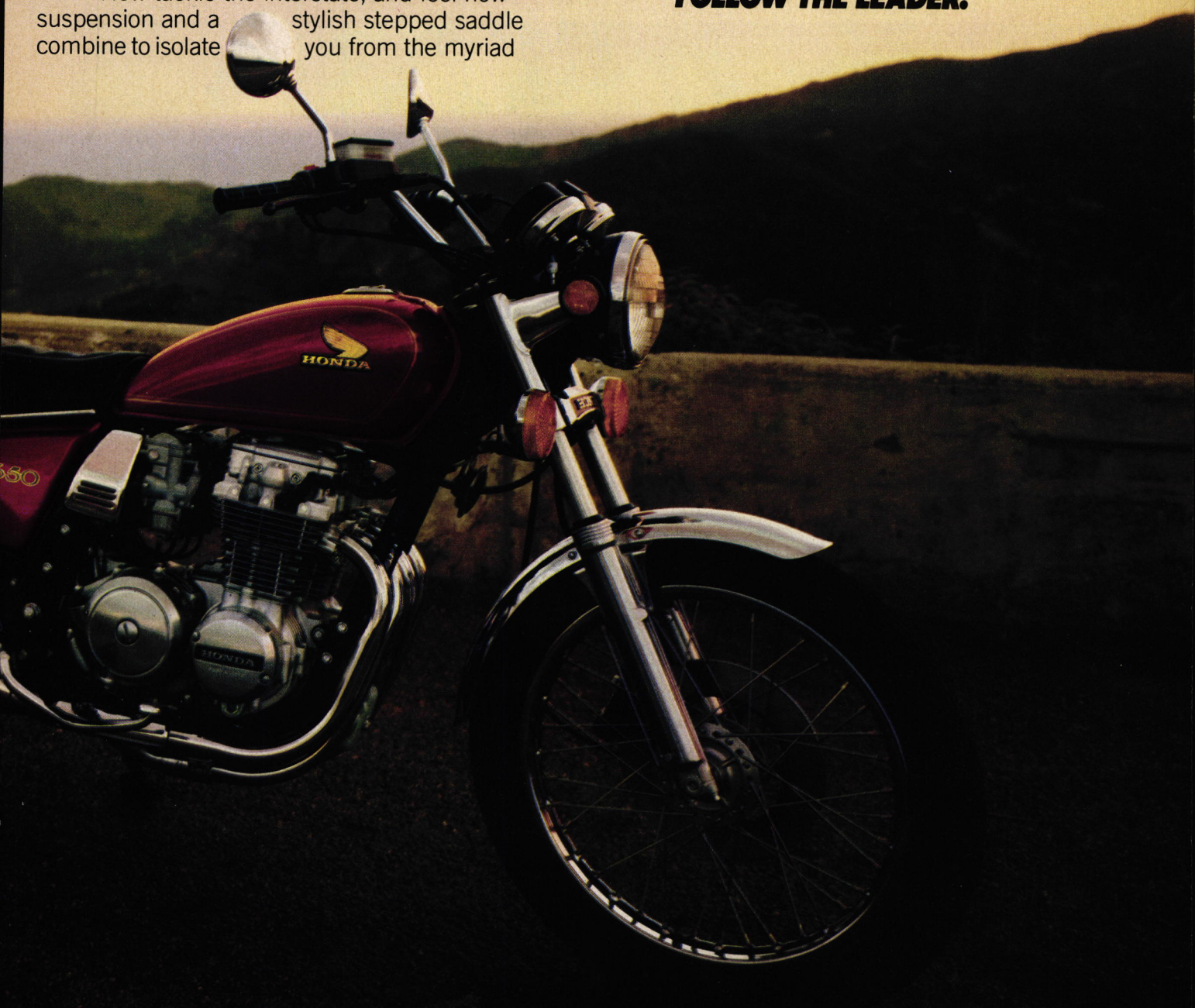
Now tackle the interstate, and feel how suspension and a stylish stepped saddle combine to isolate you from the myriad jolts and bumps of freeway riding. It won't take you long to realize that smooth isn't confined to the CB650's classic good looks.

But the essential quality common to all true classics is that they stand the test of time. That's what makes this Honda a classic, well beneath its meticulous finish. And well beyond the ordinary run of middleweight street machinery.

Think of the Honda CB650 as an uncommonly traditional classic. As uncommon, in fact, as the men who ride it.

HONDA

FOLLOW THE LEADER.



RIDING IMPRESSION:

Yamaha YZ465G

The new King Kong of cubic motocross.

BY DAVID DEWHURST

Ask Heikki Mikkola or Bob Hannah to design the ideal average-guy Open-class motocrosser and they'd both probably hand you a picture of Yamaha's all-new YZ465G. Because for a change, Yamaha's production-line motocrossers are close replicas of the factory bikes that have won a truckload of national and international championships. The new YZs are not *exact* works copies, but they're close enough that you'd almost have to be Mikkola or Hannah to know the difference.

This production rethink has meant more than just a change of tank decals; it has meant a complete redesign. And at the heart of Yamaha's new Open-class behemoth lies a whopping 465cc engine that shares little more than clutch and clutch cover with previous YZ400 engines. This is, according to Lucien Tilkens—the designer of the monoshock suspension and the man responsible for building and maintaining Mikkola's GP machinery—exactly the same displacement as on the Yamaha ridden last year by the Flying Finn.

Taken on its own, the 465cc engine is enough to convince any disbeliever that

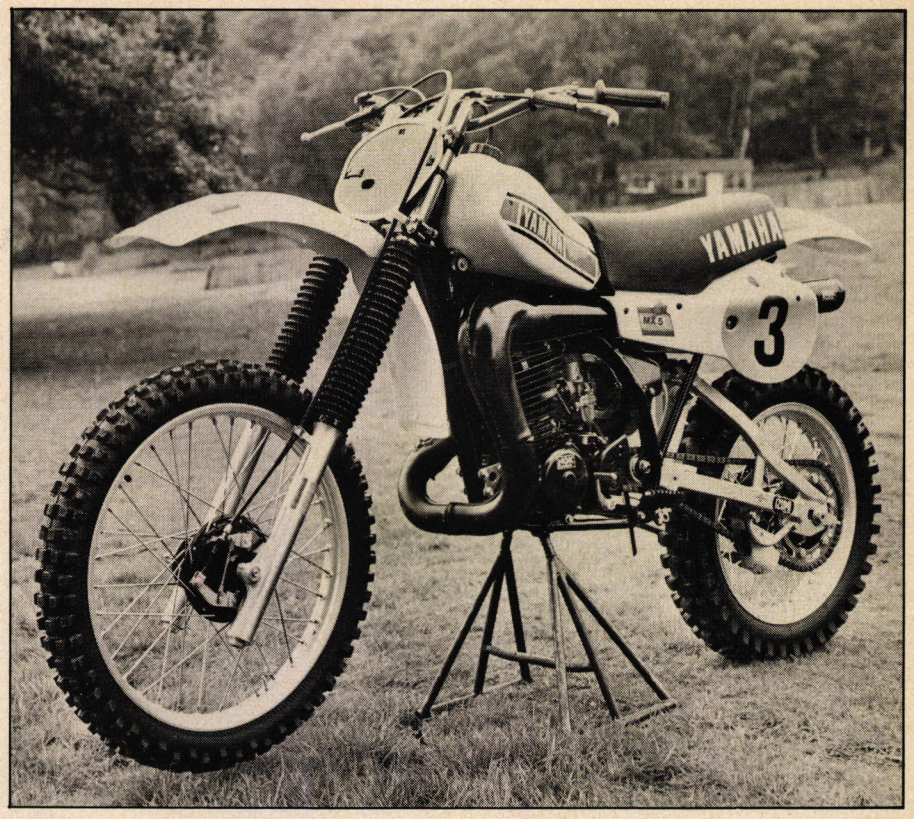
this year, Yamaha means business. And to build this monstermotor—the largest two-stroke single currently available—the company's engine designers went against their usual practices and decreased the bore-to-stroke ratio. By enlarging the bore three millimeters and the stroke seven, they ended up with enormous 85mm by 82mm figures that alone suggest gut-wrenching torque. Add a set of paddle-steamer-proportioned flywheels and you quickly realize that the 465 is not a high-revving screamer. That fact is further evidenced by the factory's claimed torque and horsepower figures, both of which are 500 rpm lower than on the YZ400F.

If you think those numbers sound impressive, though, wait until you hear the throaty roar that rumbles through the 465's exhaust when you turn up the wick. An interesting part of that system is an odd-looking lump in the header pipe, a bulge that looks like a half-digested meal in a rattlesnake. Since I was riding this YZ in Europe prior to its official introduction to the world, no one from Yamaha was prepared to discuss the purpose of the bulge, but one can only suspect that it has something to do with the generation of the 465's locomotive-class torque.

It is that long-legged bottom-end and midrange power that distinguishes the 465 from every other production Open-class motocrosser ever built in Japan. Were it not for the monoshock suspension and the name on the tank and seat, the power of the 465 would make it easy to pawn off as something grown in Germany, Sweden or somewhere else in Europe. In fact, Yamaha has equaled or beaten the Europeans at their own tractability game by deserting the high-revving, frantic power delivery that has typified Japanese two-strokes since Day One, opting for a mile-wide powerband through cubic displacement.

Describing the bottom limit of the powerband, therefore, is made simple: If you hear any noise coming from the YZ's muffler, the engine is in its powerband. I don't know how fast the 465 must be kicked over to be started, but if that speed is 500 rpm, the engine is ready to do serious business at 501.

From that point upward, the revs build quickly, but not with the belt-in-the-back explosiveness of the YZ400. The progression up through the rpm range is so gradual that you can be fooled into thinking that you're really not going all that fast. But there are a few clues to just how fast you *are* going—like the fact that the trackside trees have become long blurs, and the next corner is getting bigger as though you were looking at it through a powerful zoom lens. And any doubts you may have about the 465's accelerative powers are forever laid to rest the first time you make a wide-open charge down a straight and have to deal with your entrance speed into the next corner.



As the revs build, so does the noise but, thankfully, not the vibration. The soft new seat and the rubber-mounted handlebar are responsible to no small degree, for they cancel out much of the vibration that might reach the rider. But the motor is very smooth to begin with and remains so all the way up to the claimed horsepower peak of 7000 rpm.

At this point, all the rules change and the engine feels as though it has blown something vital. The power drops off sharply and the internals knock and rattle enough to make you wonder if there's a parts warranty on this model. But not to worry; there is no imminent mechanical catastrophe about to occur beneath the 465's fat new gas tank. All the commotion is just audible warning that an upshift is in order. That's because God and Yamaha never meant 465cc motocross singles to spin all of their considerable mass so quickly. If the five-speed gearbox were automatic, it would be set to upshift just past the 6000-rpm torque peak, which would keep the motor burbling along well inside its powerband.

Obviously, this is not a description of a motorcycle that must be ridden like a 125. The 465 can attain competitive speeds without much attention to the gearshift, which makes fast riding easier for novice and expert alike. The secret to fast lap times is to use an rpm spread that brackets the torque peak, not the power peak. The 52 claimed horsepower could spin a four-inch slick on asphalt, so turning it all loose on dirt usually results in shredded knobs and deep trenches.

That the shift lever need not be used often is fortunate, because it's hard to operate. The shifter shaft exits the engine cases further forward relative to the left footpeg than on last year's bike, forcing the lever to be shorter. And the easily broken aluminum lever also must be cocked upward at a 30-degree angle if an American-size boot is to fit comfortably beneath it. Which means that the lever must be pulled backward as much as upward during an upshift, and that's an awkward movement at best. As a result, missed shifts become a way of life on the 465, a problem only a longer lever will cure.

Making use of the engine's abundant torque also is essential for good holeshots. Second gear still is too low to prevent the 465 from wasting time with wheelspin, but third gear will launch the bike off into the first turn at flank speed, leaving behind only a killer roost of dirt and a trench deep enough for a four-inch sewer pipe.

All this power would be wasted if the

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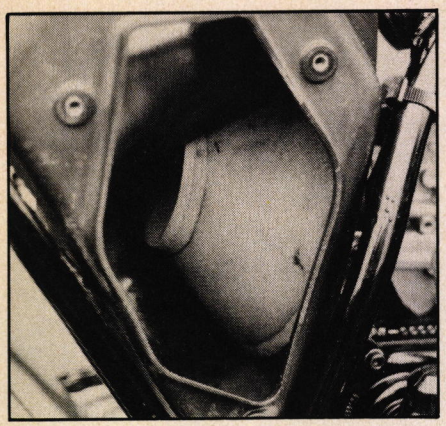
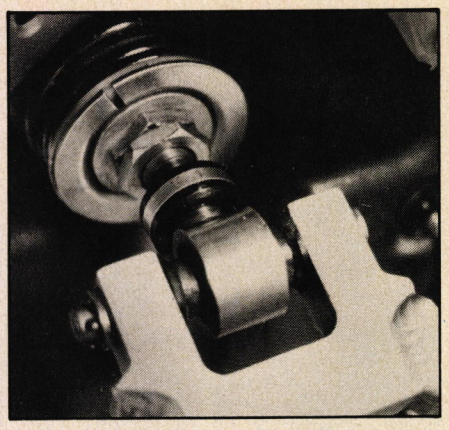


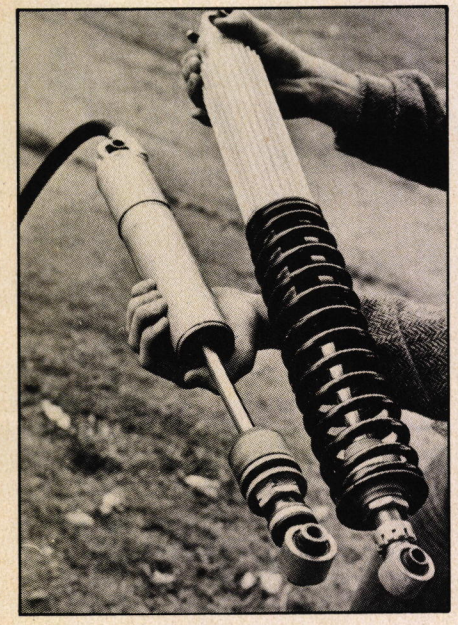
New bowl-shaped air filter element

Not a paragon of accessibility.



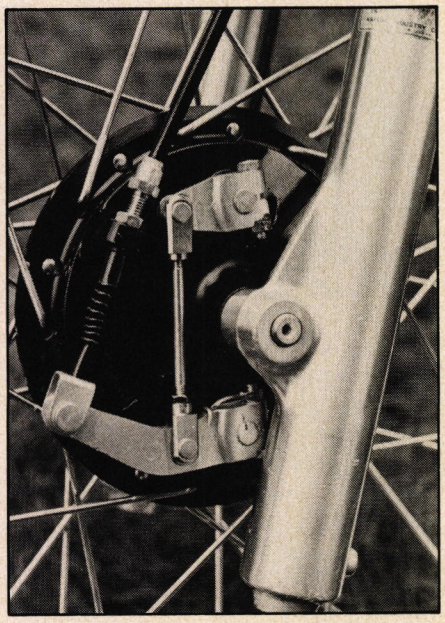
Adjusters for damping, spring preload

Finally out where you can reach them.



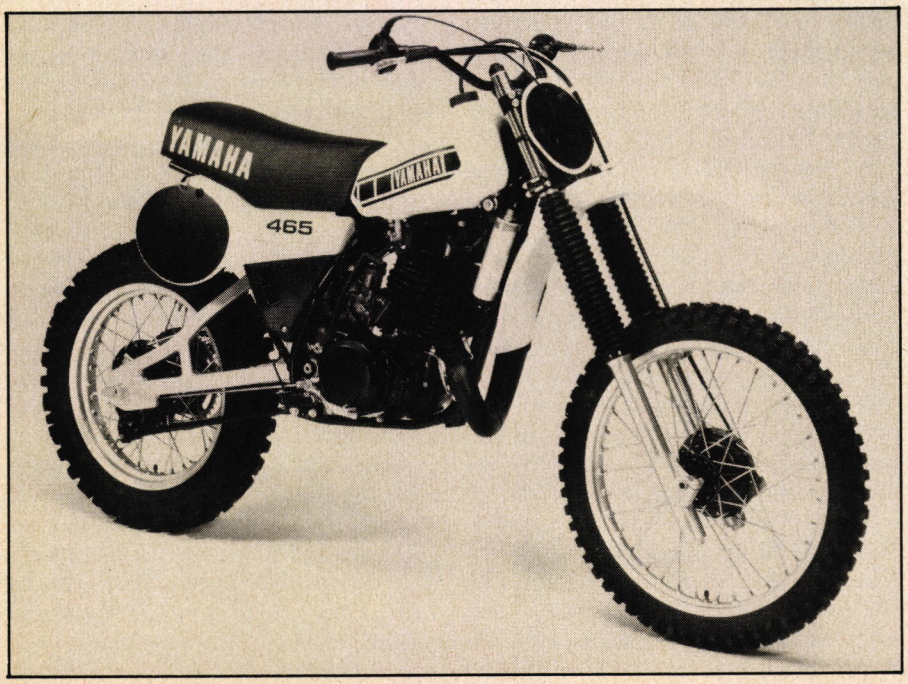
Revised new monoshock unit (left)

Shorter, lighter, cooler, more travel.



YZ's double-leading-shoe front brake

An old street trick that's new to MX.



Yamaha couldn't keep its wheels on the ground, which sometimes was a problem with previous monoshockers. But Yamahopping and all other forms of monoshock-related rear-end quirks have been banished by a new rear suspension like that found on the factory bikes. It features an all-new monoshock design and a swingarm that's been extended at the front to move its pivot much closer to the countershaft sprocket—which itself is positioned at the very rear of smaller, redesigned engine cases.

Rather than retaining the '77–to–'79 monoshock design in which a long shock was housed inside of a stamped backbone, the new YZ uses a shorter shock that bolts to a conventional single-tube backbone. This not only makes for a lighter shock unit, its lower mounting position drops the center of gravity somewhat. The shock still is much the same internally, retaining its 25-position damping adjustment and threaded-collar spring preload adjuster. But the DeCarbon mechanisms—the floating piston and nitrogen chamber—were moved from the shock body into an aluminum reservoir clamped to the frame in front of the cylinder head.

The frame, too, is new, featuring a single front downtube and stronger swingarm-pivot-to-backbone bracing. It's interesting to observe that while Yamaha has gone from last year's double-downtube frame to a single-tuber, Honda has changed from single to double, with both companies claiming that their new designs offer superior strength.

Yamaha made so many other changes to the YZ's chassis, though, that a frame-strength comparison with the previous YZ would be meaningless. Take the steering geometry, for example, which the designers raked way out to improve straight-line stability at the high speeds they knew the 465 would reach. Or check out the wheelbase, which was lenghtened about an inch and one-quarter for the same reasons. And those stabilizing efforts certainly work, too, for the 465 wants to go in a decidedly straight line and help make those terrifyingly high speeds not so terrifying.

But that rock-steadiness has come at the expense of the cat-like cornering agility that marked last year's YZ400. Tight, flat corners were downright difficult to go around quickly, and even bermed turns couldn't be rounded half-heartedly, lest the bike ride up over the top of the berm before I knew it. Because of the lower center of gravity, the 465 felt lighter than the YZ400, even though both weigh about 225 pounds. But the new YZ's slow steering and long wheelbase would only let the

chassis respond well on low-speed corners if I forced the bike to turn. The 465 steered best on fast corners or if I could use the engine's ever-ready power to drift the rear wheel around the turn.

If the steering stability shines in the high-speed rough, so does the suspension. Never before have I experienced such a cushy ride on a Yamaha. In fact, the new YZ has one of the smoothest rides found on any production motocross bike. With the shock damping set on the sixteenth-firmest click and the spring preload about in the middle of its range, the suspension would sag a couple of inches when I sank into the soft seat. This light preload accounts for a lot of the supple ride, but revised damping rates also help keep harshness out of the picture. Many riders of up to about 160 pounds may want to fit the monoshock with the optional softer spring, but few will ever want or need a damping rate that isn't attainable within the shock's adjustment range. And those adjustments are easier than ever now that the adjuster ring is right out at the shock-to-swingarm junction where it can be reached.

A new front fork also offers cushier movement than any Yamaha fork before it. The longer and slimmer slider legs move with no sign of seal friction. And inside, Yamaha has revised the damping to remove last year's problem of harshness toward the end of the stroke. Now, all of the travel has a progressive feel that will leave you with a broad grin and relaxed wrists.

Because of the superb action of the suspension and the stability of the chassis, using the YZ's new double-leading-shoe front brake to its fullest is no problem. The front hub is the same as the YZ400's, but the backing plate has two cams connected by an adjustable linkage. It's a new idea only to motocross, for double-leading shoe brakes were fashionable on street bikes prior to the advent of hydraulic disc brakes. The 465's brake is very sensitive during the first part of the lever movement, but it actually lacks the wheel-locking ability that one might expect. Perhaps the linkage on the bike I rode was improperly adjusted (I didn't have a chance to check it but that's always a problem with this kind of brake) or maybe further running-in would eliminate the problem; but even with it, the Yamaha was one of the few motocrossers I've tried that could stop as well and as predictably as a Husqvarna.

While the engineers were uprating the braking and other functions, the plastic people were getting their two cents' worth, as well. Reshaped fenders, side panels and gas tank all are injection-molded from a new plastic that appears virtually indestructible and is, Yamaha claims, less porous, which could help the tank decals stay put a little longer. The airbox also is a new plastic molding that dispenses with the old side-mount filter and puts a conical-shaped foam element directly against the carb's bellmouth. But while the filter may be more efficiently positioned, it is a hassle to fit securely, just like on earlier RM Suzukis. There is so little room to maneuver around the element that a healthy layer of grease around its edge is the only way to insure an airtight seal.

That's really a minor problem, though, when viewed in light of the 465's overall performance. Because for the first time in a long time, the public can buy a YZ that's a reasonable replica of the works machines that have made history in the hands of riders like Mikkola, Hannah and Bell. The 465 is not an exact replica, but only because the best riders in the world need motorcycles that have been specially tweaked to cope with their warp-speed lap times. So what you get in the 465 is a wonderful blend of works-bike technology tempered with production-line common sense.

That it has taken Yamaha's engineers so long to build this motorcycle is still hard to understand. But build it they have, and with it, Yamaha looks ready to set the motocross world on its foam-filtered ear. ●

SPECIFICATIONS (CLAIMED)

IMPORTER: Yamaha Motor Corp., U.S.A.
6555 Katella Avenue
Cypress, California 90630

CATEGORY: motocross

ENGINE

Type	two-stroke vertical single
Bore and stroke	85.0mm x 82.0mm
Displacement	465.3cc
Compression ratio (corrected)	7.0:1
Carburetion	one 38mm Mikuni slide/needle
Air filter	washable oiled foam element
Lubrication	pre-mixed fuel and oil
Starting system	primary kick
Ignition	external flywheel magneto CDI
Charging system	none

SUSPENSION/WHEEL TRAVEL, IN.

Front	air/spring, 38mm stanchion tube diameter/11.8 in. (300mm)
Rear	monoshock with remote reservoir, 25-position damping adj., 10 mm spring preload adj./12.2 in. (310mm)

BRAKES

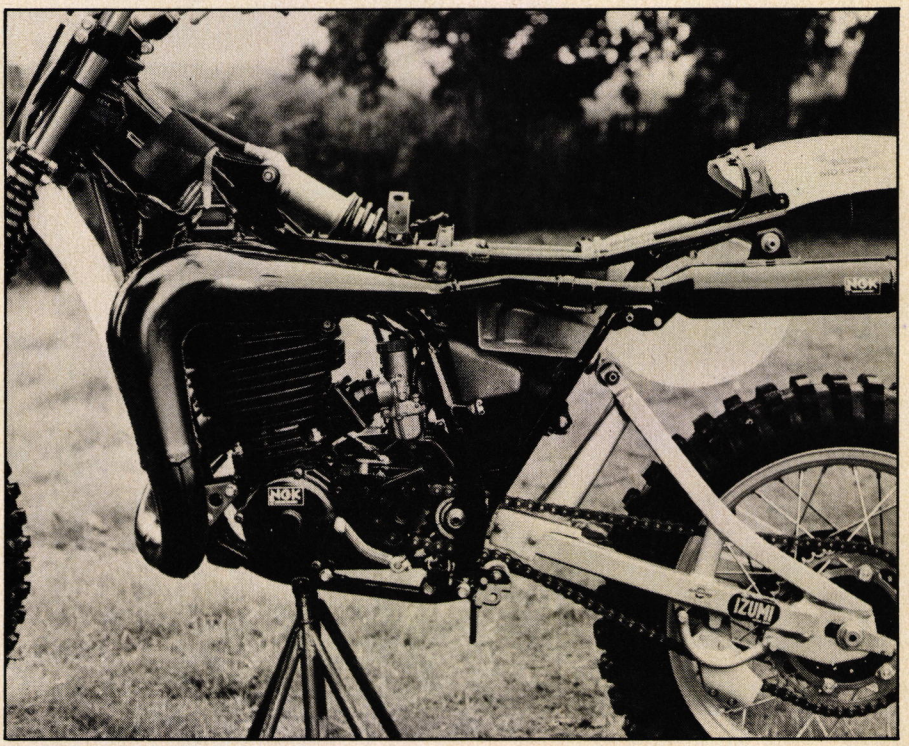
Front	drum, double-leading shoe
Rear	drum, single-leading shoe, rod-operated

TIRES

Front	3.00 x 21 Bridgestone
Rear	5.10 x 18 Bridgestone

DIMENSIONS AND CAPACITIES

Weight	225 lbs. (102kg)
Wheelbase	58.3 to 59.3 in. (148.1 to 150.6cm)
Seat height	36.8 in. (935mm)
Handlebar width	36.0 in. (914mm)
Ground clearance	12.2 in. (310mm), at frame cradle
Frame	tubular chromoly steel, single front downtube
Fuel tank	plastic, 2.3 gal. (9.0/), no reserve
Instrumentation	none



All-new short-shock chassis and 465cc monstermotor

It took a while, but Yamaha's works-think finally made it into production.

Our little cafe hot punch.

If you're hungry for spicy performance, try our new GS-450S.

It comes with such tasty features as low bars, race-type mirrors, sleek sport fairing and special striping to go with its red-hot paint job.

Power is supplied by Suzuki's new and bigger 4-stroke Twin. Which is fired by a transistorized ignition, fed by constant velocity carbs and matched with a 6-speed gearbox.

So you know our little cafe really cooks.

Other nice items on the menu include a front disc brake, 5-way adjustable shocks, mag-style wheels and gear position indicator.

One more thing to digest: Like all 1980 GS models, our 450S is backed by a 12-month unlimited mileage warranty.*

Obviously, that's good food for thought.

SUZUKI 1980

SUZUKI®

The Performer.

Ride safely. Always wear a helmet, eye protection and appropriate riding apparel. Member Motorcycle Safety Foundation

specializes in

1980 GS Model
TWELVE-MONTH UNLIMITED MILEAGE WARRANTY*

*See "Limited Warranty" brochure for details. This warranty furnished only in the 48 contiguous United States and Alaska.

TRACK TEST:

Honda CR125R-80 Elsinore

Something the other riders really can get behind.

BY PAUL DEAN

It takes a big man, and an even bigger company, to admit a mistake. And if there's any truth to that adage, Honda must be an absolutely *immense* company, not just because of its unit sales and net profits, but because it has admitted a sizable design faux pas. The miscalculation was last year's CR125R; the admission comes in the form of the motorcycle you see here, *this* year's CR125R. It is an entirely different motorcycle in most respects, and if you knew the expense involved in doing that on a machine that's less than one year old, you'd understand why it constitutes an admission of error.

Not that the '79 CR125R was an engineering disaster, because it certainly was not. It was, in many ways, one of the most congenial 125cc motocrossers in years. But a two-wheeled welcome wagon is not what's needed to win 125-class motos; big horsepower and aggressive handling are. And packing more of those all-important elements into the CR and shaking a few unwanted ones out of it was best accomplished by a serious rethink.

Before you start booing and hissing in the direction of Asaka, however, understand one thing about Honda's 1980 reaction to its 1979 miscue: You win. Because what you get for all of Honda's R&D trouble is one of the very best 125 motocrossers ever. You certainly get the *fastest* stock 125 in history, and one whose handling is right on the bubble and still has most of last year's easy-to-ride personality. You also get a price tag that hasn't been upped as much as the competition's, despite the tremendous expense that Honda incurred in redesigning the bike before its time.

Honda's problem with last year's CR was not in its construction of the bike, but

PHOTOGRAPHY: GEORGE WEGNER

in its assessment of what a 125 rider wants and needs. The engineers felt that an unusually wide powerband was essential, even if it meant less power at high revs. They also thought that a chromed cylinder bore, a 23-inch front wheel and un-knobby "Claw Action" tires would be perceived by 125cc riders as "advantages."

But they weren't. Because something is only an advantage to a motocrosser if it helps him ride faster. And none of the above did that. Last year's CRs were the slowest of the 125s from Japan, and the Claw Action tires didn't work as well as conventional knobbies. Furthermore, the 23-inch front wheel gave rise to turning quirks and front-end twitches, and there wasn't a decent selection of 23-inch knobbies available as replacements. And although the chrome-plated cylinder *did* offer better heat transfer than a cast-iron liner, it couldn't be repaired or easily ported, thereby discouraging any engine modifications that might have made the CR competitive. Advantages? No way.

That's all water under last year's bridge, though, for those features haven't been carried over for 1980. The CR now has more-radical porting and a cast-iron liner, and its 21-inch front wheel (as well as the 18-inch rear) wears a conventional knobby. A few other bitched-about items didn't make it through the CR's model-year rethink, either, including the easy-dent aluminum gas tank (replaced by Honda's first plastic tank) and the non-reservoir gas-emulsion rear shocks (superseded by attached-reservoir gas-bag Showas with two-position adjustable rebound damping).

Surprisingly, the engine changes aren't all that drastic. The exhaust port is slightly wider and taller, the transfers are slightly *narrower* and taller and the intake is fractionally shorter. And to insure that the displacement won't exceed the class limit when the liner is bored to accommodate the larger of the CR's two oversize pistons, the cylinder bore was *reduced* from 56mm to 55.5mm. Those pistons now have two rings and a higher cutaway on the rear skirt, and there's a two-millimeter larger venturi (34mm vs. 32mm) in the Keihin carb for better high-rpm breathing. The reed-valve block is also slightly different, with Honda's patented Grid Pattern design stamped only on one side of thinner reed petals, supposedly to allow easier opening. Altogether, with a new exhaust system tuned for more top-end kick, those modifications make a performance difference between the '79 and '80 CRs that is like night and day—or, if you will, like ahead of the pack instead of behind it.

That's welcome news to the legions of Honda riders who were disappointed when last year's CR failed to transform 125 motos from the Yellow River into the Red Sea. But that crimson tsunami could materialize this time around, because no stock 125 is as fast as the new CR.

We learned that by spending a couple of days racing our CR test bike against a new Suzuki RM125T, the bike that currently owns the 125 class. Reputation notwithstanding, though, the Suzuki couldn't quite accelerate with the CR. The RM was, admittedly, a hair stronger at the very bottom of its powerband; and the Suzuki seemed more willing to move back up into that powerband if the revs accidentally got too low. But from there up to about the middle of the powerband, the two bikes were even. And after that, it was the Honda's show all the way. The CR continued to pull more strongly once the power peak was reached, resulting in enough acceleration to more than offset what it may have lost to the RM at lower revs.

All of that newfound high-rpm punch is a product of the reworked top-end pieces, since everything below the cylinder is as before. So the designers can get some consolation from knowing that, if nothing else, the CR's engine was and is quite sound. That's why the cases have the same part numbers as before, why the six-speed gearbox was left untouched and why the CDI's spark follows the same advance curve. Those are items that no one complained about on last year's CR.

No one complained about the chromoly single-downtube frame, either, but that didn't stop the '80 CR from getting an all-new one anyway, complete with double front downtubes and a matching "banana" swingarm. One reason for the change was that reverting to a 21-inch front wheel forced an entirely different angle and location of the steering head. And to add lateral rigidity to that relocated head, R&D opted for the twin-downtube arrangement used on the Team Honda works bikes. Honda's technical people also were quick to point out that it was the frame's dual downtubes that forced the relocation of the exhaust port outlet to the middle of the cylinder, *not*, as most people have speculated, the other way around.

Whatever the strategy, the new chassis works magnificently. The steering is far more precise and predictable, and—thanks to the disappearance of the 23-inch front wheel—the side-to-side oscillations that bothered last year's CR never happen.

There is, in fact, nothing about the new chassis geometry that's the same as the old. The operative word this year is *quick*, with the new CR having a steeper steering angle, less front-wheel trail and a shorter wheel-

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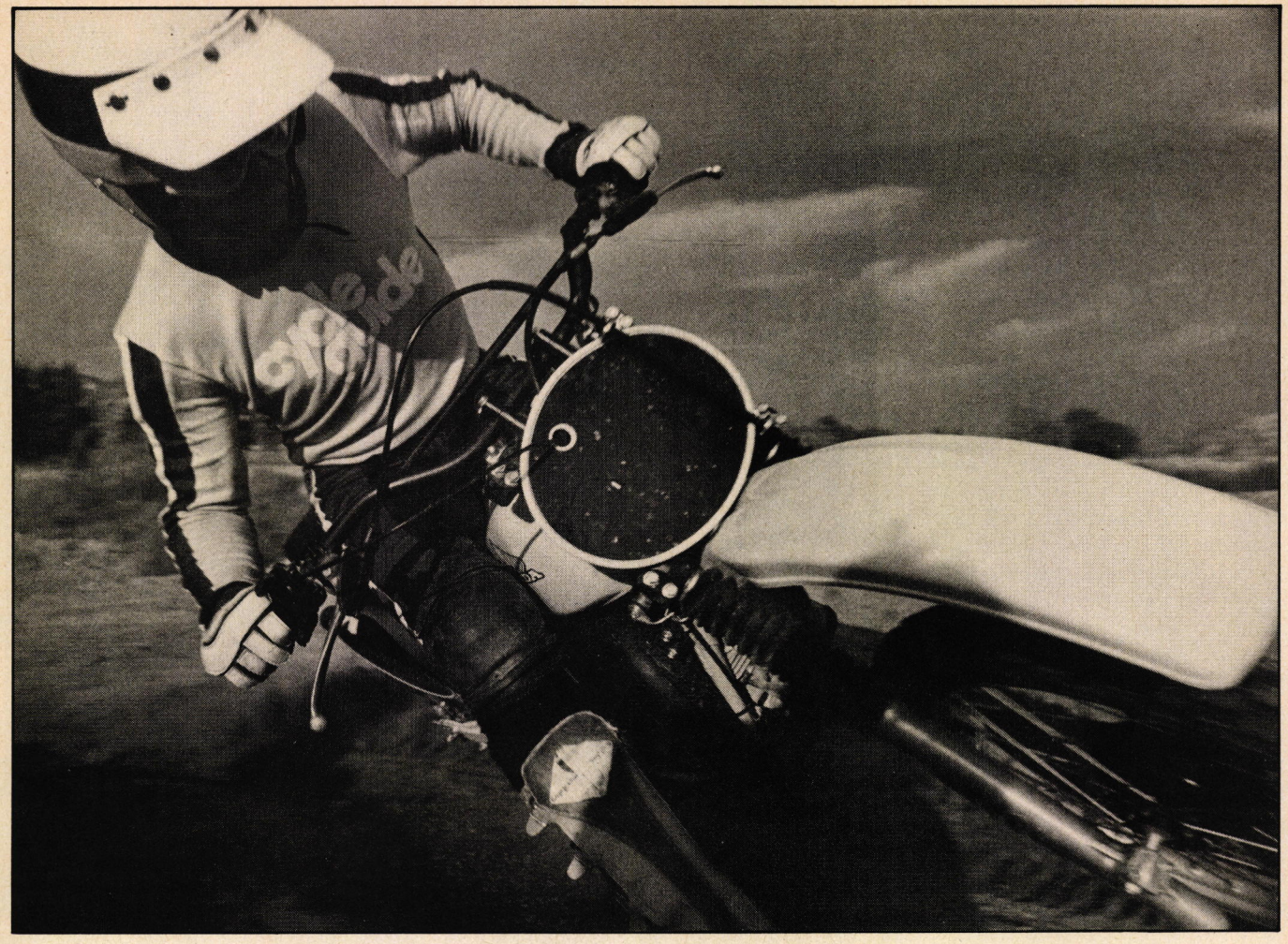


base than any other 125 MX bike on the market. The new CR does steer more quickly than the last one, yet it often doesn't seem to steer as quickly as the RM125T, which has slower steering numbers.

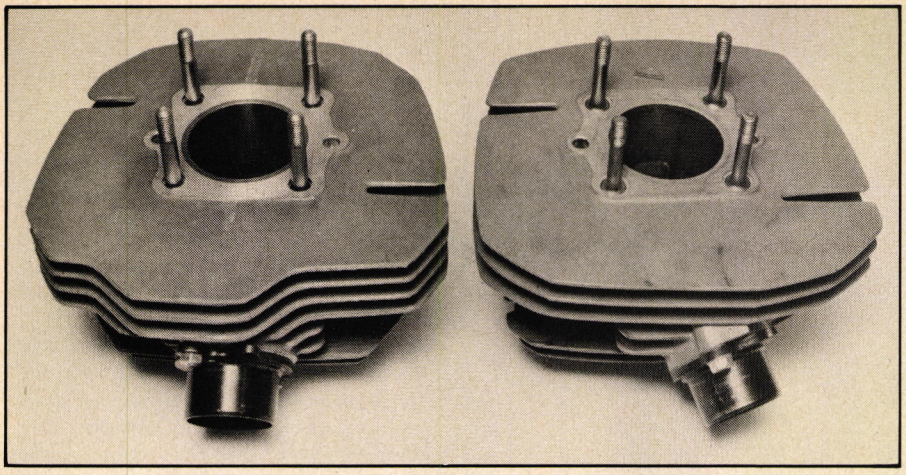
Our side-by-side comparison between the CR and RM confirmed that assumption, showing the Suzuki to have a very small edge in steering precision when ridden at ten-tenths. But the Honda earned points for being easier to ride at any speed. The Suzuki demanded a lot of concentration from its rider during cornering and rewarded him for a job well done by going exactly where he pointed it. The Honda wasn't always that deadly accurate when turning, tending to run wider than the RM by mere inches on slow, flat corners unless deliberately made to do otherwise. Still, the Honda didn't require the concentration that the RM did just to get through a corner cleanly. No one complained about either one, though, because despite their small differences, the steering on both bikes is world-class stuff.

So are both suspensions, although point for point, they're not quite equal. On rolling terrain, big whoops and the like, the CR's superb air/spring Showa fork and non-fade rear shocks cushion the blows just as well as the RM's Kayaba equipment, which is to say that both are outstanding. But on smaller bumps, the CR's springing and damping feel slightly stiffer than the Suzuki's, despite Showa's use of anti-stiction rings in the fork and shocks. The difference is most noticeable in the rear when accelerating or braking over stutter-bumps and other choppy terrain. And while the minor wheel hop that results usually does not adversely affect the CR's lap times, it could take its toll by the end of a long moto. Besides, the RM's rear-wheel action on the same bumps is better. Adjusting the shock damping doesn't help the Honda, either, for although excellent overall results are obtained on the stiffest of the two settings, only the rebound damping is affected. But, once again, we're splitting hairs, for only the RM and the Husky 125 have a better suspension system than the CR, and not by all that much.

Aside from that mild choppiness on certain small bumps, the CR offers one of the most undemanding, non-tiring rides in the 125 class. Our bigger testers fell in love with the bike's full-scale ergonomics which—unlike those of the compactly laid-out RM—don't contort anyone over 5-foot-7 into a roadracing crouch. Yet the smaller riders appreciated Honda's lowering of the seat by three-quarters of an inch despite an increase in wheel travels.

Some credit for the lowered seat must be given to the bend in the new swingarm, which allows the use of longer shocks without raising the chassis. And the swingarm also played a key part in keeping the CR's retail price comparatively low by being made of chromoly and not aluminum. Honda R&D's test results indicate that although the arm is heavier than an alloy one, it's just as strong; but because of the currently inflated price of aluminum, the use of chromoly reduces the overall price of the CR by a considerable amount.

So did economics encourage Honda's switch from aluminum to urethane as the material for the three chain-control rollers. But in this case, that may have been a step backward. Two of the soft, low-buck rollers on our test bike either seized or melted, and one even slid sideways as it self-destructed, milling a wide hole in the plastic airbox. The problem is that the rollers spin only on plain steel bushings instead of bearings. Lubing those bushings during

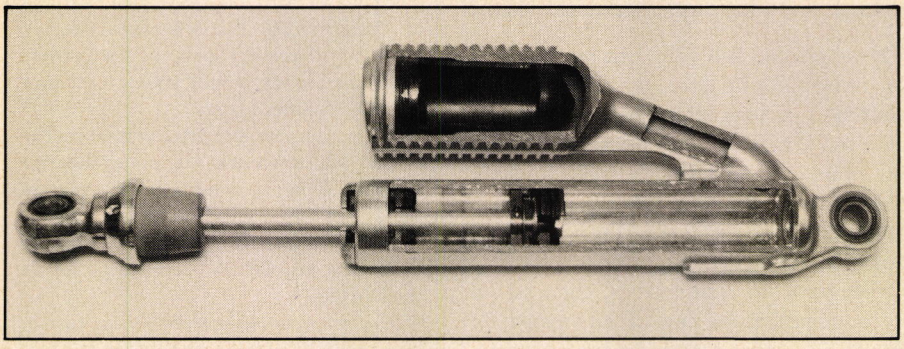


New downtube-clearing center-port cylinder (left)

More finning for improved cooling, cast-iron liner for easier repair.

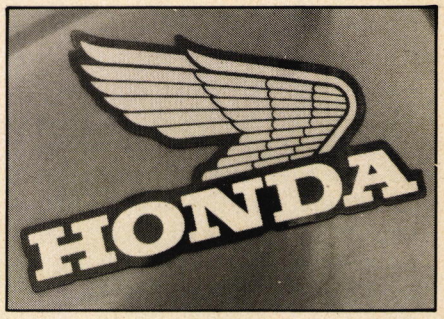
New CR's two-ring piston (left)

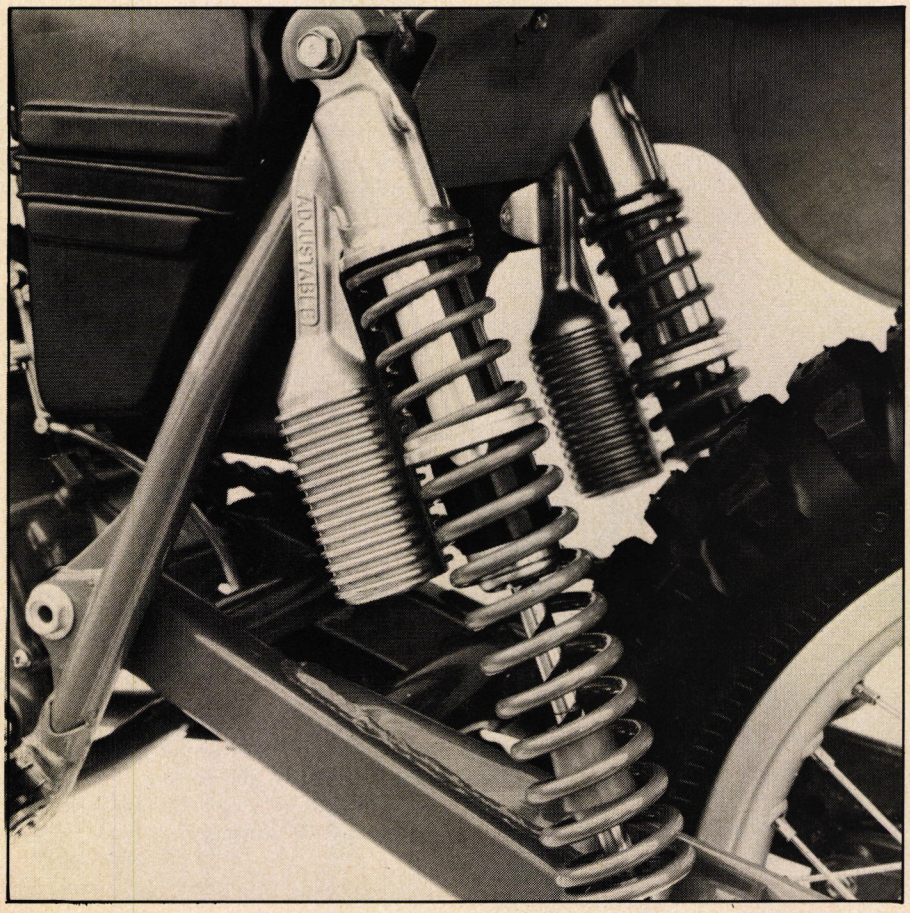
Better sealing, better breathing.

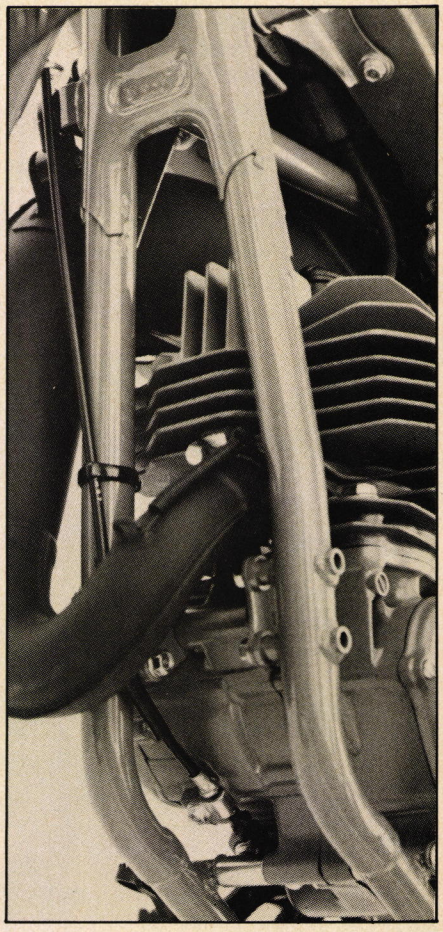


Bladder-type reservoir shocks with two rebound damping adjustments

It will take big-buck aftermarket shocks to do better.







All-new-for-'80 CR125R frame

Honda doubles the downtube ante.

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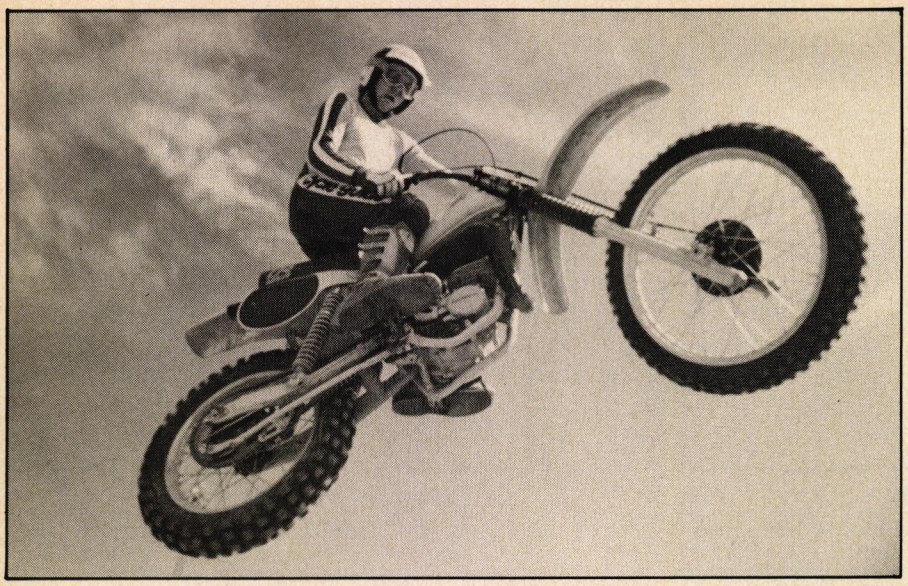


chain maintenance helps, but the ultimate fix would be to use sealed-bearing rollers.

In the end, it would appear that Honda's designers know a *lot* about ultimate fixes, since they have taken the wholly unremarkable and turned it into the fiercely competitive. And while there's no denying that they also were responsible for last year's bike in the first place, you can't fault their motives in designing it. They simply were trying to innovate, to implement new ideas that looked terrific on the drawing board. The problem was that where it counted—in the showroom and on the racetrack—those ideas didn't work. If you're going to bad-rap Honda for that mistake, though, you have to applaud it for making things right so quickly.

Furthermore, we were after-the-fact accomplices in the controversy, for in our March '79 test of a very early production CR we praised it highly. But during rides on other CRs in later months we found that their engine performance and suspension were inferior to what we had experienced on our test bike. To prevent such a thing from happening this time, we rode three different CR125Rs. They were virtually identical in performance.

We have no reservations, then, about recommending the new CR to anyone, for Honda has indeed made it a far better motorcycle this time around. Unquestionably, it is the fastest stocker in its class and one of the better handlers as well. It's a bike that we could criticize only in the design of its chain roller wheels and the degree of difficulty required in servicing its two-stage foam air filter element. If that's the asking price for admission to a class motocross act like the CR's, we would gladly pay it. And we think you would, too. •

Ride Review

• If you think the new Honda CR125 is the best 125 motocrosser on the market, you're not far from wrong. But you're still wrong. The differences are subtle, but the Suzuki RM125T is the better racer.

In most ways the Honda's suspension matches up to the Suzuki's, although it has a harsher feel. Yet while the Honda's rear end works good on King Kong jumps, once you encounter braking ripples it leaps for the moon like a Saturn V rocket. And when your rear wheel is in the air, you can't slow down very well, which means RM125s will outbrake you every time.

The Honda does have the advantage of the most powerful one-eigth-liter MX engine you can buy. You'll look good churning up the straights. But the quick-steering RM125 will carve you up in the corners while the Honda is still trying to change direction against a berm.

When you come right down to it, the Suzuki will turn quicker lap times than the Honda because it scrambles around corners better and converts its horsepower into forward motion instead of wheelspin. So at the finish line, the CR125 is always second to the RM125.

That just goes to show you that no matter how small the differences between two motorcycles, having the fastest bike means owning the quickest lap times, not the most horsepower. *—Dean Taylor*

• No matter how tight my racing line with the CR125 happened to be, Taylor could still tuck the RM125 underneath me and turn inside while I was still looking for a berm. Yet even so, the CR125 is my choice for motocross, every day in every way.

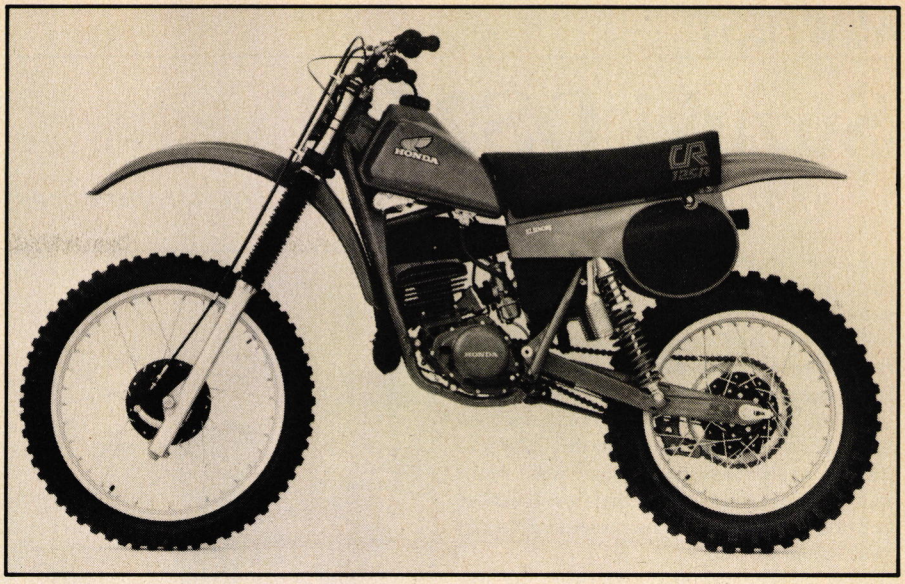
Basically, it takes more finesse to make the RM125 go fast than I have at my disposal. Its handling is intolerant of mistakes. I might slither around corners on the Honda instead of scribing a tidy line, but I won't end up on my head. And I know I can call up a stampede of horsepower from the engine to overcome my lack of skill in the corners.

When I was faced with this confrontation of agility versus horsepower in the RM250–CR250R shoot-out last spring, only the Honda's explosive power dissuaded me from declaring it the winner. You can pull the trigger with Honda's 125 engine the way you can with the 250, but it makes the transition into the powerband more predictably than the 250, so the chassis stays hooked up and moving forward rather than sideways.

I reckon the Honda's edge in horsepower and cornering stability makes it the choice for every rider this side of Dean Taylor. Taylor might be able to coax more speed from the RM, but I can stay closer to him on a Honda than I can on a Suzuki.

—Michael Jordan

Honda CR125R Elsinore



SPECIFICATIONS:

IMPORTER: American Honda Motor Co.
100 West Alondra Blvd.
Gardena, California 90247

CATEGORY: motocross

SUGGESTED RETAIL PRICE: $1329

ENGINE

Type ..... two-stroke vertical single
Port arrangement ..... one reed-valve-controlled intake, four transfers, one booster transfer, one exhaust
Bore and stroke ..... 55.5mm x 50.7mm
Displacement 122.7cc
Compression ratio (corrected) 8.0:1
Carburetion ..... one 34mm Keihin slide/needle
Air filter ..... two-stage washable oiled foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... internal-rotor magneto CDI
Charging system ..... none

DRIVETRAIN

Primary drive ..... straight-cut gears
Primary drive ratio 3.158:1
Clutch ..... wet, multi-plate
Final drive type ..... #520 chain (⅝-in. pitch, ¼-in. width)
Final drive 13/51: 3.92:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.54	31.44	2.4
II	1.87	23.23	3.3
III	1.56	19.28	4.0
IV	1.30	16.11	4.8
V	1.14	14.07	5.5
VI	1.00	12.39	6.2

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... air/spring, 37mm stanchion tube diameter/11.5 in. (292mm)
Rear ..... 5-way adj. spring preload, 2-way adj. rebound damping/10.8 in. (275mm)

BRAKES

Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, rod-operated

TIRES

Front ..... 3.00-21 Bridgestone Motocross M23
Rear ..... 4.00-18 Bridgestone Motocross M22

DIMENSIONS AND CAPACITIES

Weight ..... 202 lbs. (91.6kg)
Weight distribution ..... 45.8% front, 54.2% rear
Wheelbase ..... 54.8 to 55.6 in. (139.2 to 141.2cm)
Seat height ..... 36.8 in. (935mm)
Handlebar width ..... 33.5 in. (851mm)
Footpeg height ..... 15.6 in. (396mm)
Ground clearance ..... 13.0 in. (330mm), at frame cradle
Steering head angle ..... 28.3 degrees from vertical
Front wheel trail ..... 4.53 in. (115mm)
Frame ..... tubular chromoly steel, double front downtubes
Fuel tank ..... plastic, 1.7 gal. (6.5*l*), no reserve
Instrumentation ..... none

PERFORMANCE

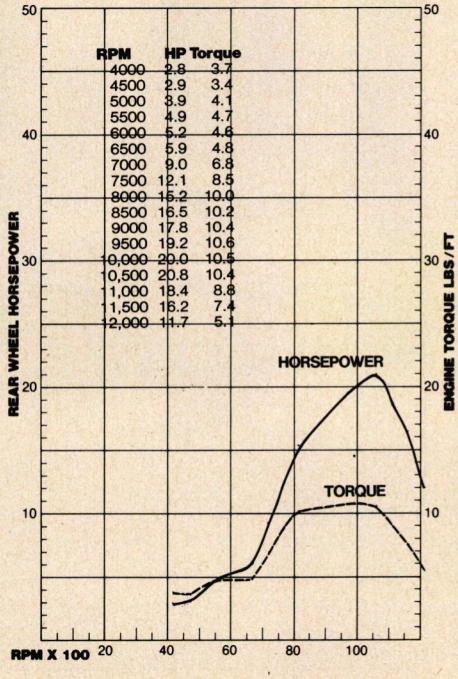
Top speed (calculated) ..... 68 mph (109 kph)

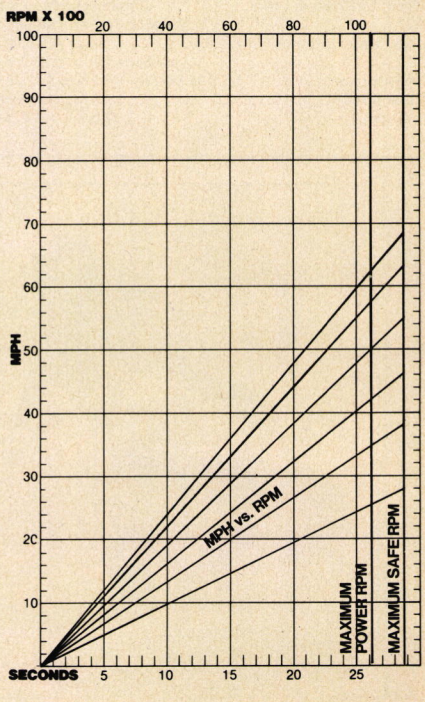
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make & Model	Horsepower	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/Rear percent	Transmission, number of speeds
Honda CR125R-'80	20.8	11.5/10.8	202	45.8/54.2	6
Honda CR125R-'79	19.1	10.8/10.6	197	47.7/52.3	6
Suzuki RM125T	19.8	11.2/11.7	200	47.0/53.0	6
Yamaha YZ125E	15.9	9.3/9.1	198	48.7/51.3	6
Kawasaki KX125 A5	20.0	9.8/10.0	194	46.9/53.1	6
Husqvarna 125 CR-'80	18.8	11.8/11.8	214	43.9/56.1	6

PERFORMANCE:





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MINITEST:

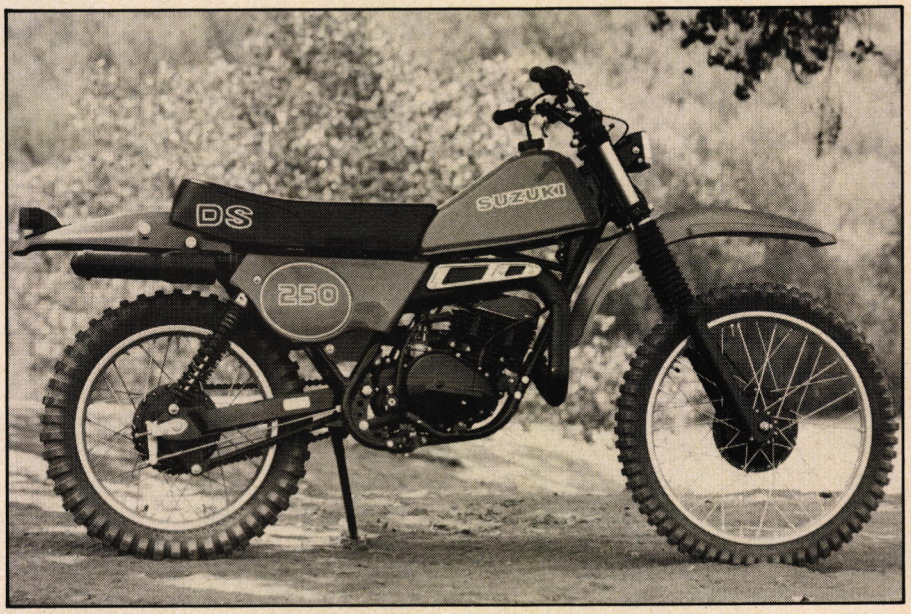
Suzuki DS250T

Why no, it won't win a motocross. But then, who cares?

• A lot of the serious berm-berserkers I know think that dirt-motorcycle progress is measured by how fast any given motocross bike can take them around any given racetrack. Which really means they think it all has to do with space-age shocks, yard-long fork travel, featherweight frames and hand-grenade engines. But I know better. I know that dirt-bike progress is really measured by how much fun a duffer can have on some offering from the other end of the dirt spectrum. On something like the new Suzuki DS250T.

Now, you might think that the worst possible way to really test a bike like the DS250 is to let some wobbly dirt geek like me stutter off on it. After all, the bike is really just a knobby-tired, slightly louder version of the old-standard Suzuki TS250, *sans* things like a horn, turn signals and any pretenses to transportation. As a matter of fact, I agreed with that at first, so I asked Staff Pro MX Racer Dean Taylor to ride it, you know, *hard*. I waved vaguely in the direction of Indian Dunes' Shadow Glen track, where ferocious young lions were carving dusty arcs in the terrain—and each other. Taylor grimaced but obliged, his face a clear mirror of the humiliation that he—a certified Serious Dirt Racer—was about to be subjected to with the orange, fake-RM-styled duffer playbike.

Five laps later he was ahead of all the CRs



Five-year-old MX chassis and motor technology made duffer-proof for the playground

Case-reed wheelie-power plus friendly handling equals pure fun.

SUZUKI DS250

Importer: U.S. Suzuki Motor Co.
13767 Freeway Drive
Santa Fe Springs, California 90670

Category	trail
Suggested retail price	$1239
Engine type	two-stroke vertical single
Port arrangement	one piston-controlled intake
Bore and stroke	70.0mm x 64.0mm
Displacement	246.1cc
Carburetion	one Mikuni 29mm slide/needle
Gearbox	5-speed
Final drive ratio	2.666:1
Front fork/wheel travel	36mm stanchion tube diameter/7.2 in. (182.9mm)
Rear shocks/wheel travel	5-way adjustable preload/5.0 in. (127.0mm)
Wheelbase	55.3 to 56.0 in. (140.5 to 142.2cm)
Seat height	33.3 in. (845.8mm)
Weight	252.0 lbs. (114.3kg)

and YZs and RMs and Maicos, spitting humiliation behind him in enormous roosts of dirt, a maniacal grin on his face. How was it, I asked when he wheelied back to the truck? Not bad, says he, the Iron Racer mask back in place, not bad for a *play*bike. Did it handle? Well, sort of. It bounced a lot, but only up-and-down, not the sickening fishtail of a badly designed, badly suspended motorcycle. It was just lacking competitive travel for motocross, although its short legs gave it a low center of gravity that made turning pretty easy. Was it fast? Well, not really, he says, although it did have a nice, flat power delivery through all the five gears. What did he think of it? Ahhh . . . pretty good for a *fake* RM, he says. Maybe something like a 1974 production motocrosser with lights. Or maybe . . . maybe even better in some ways. And just before he climbed on a *real* dirt bike—that RM125T over there—he screwed up his face and admited that, hey, actually, you know, it's not too bad. For a *play*bike, of course.

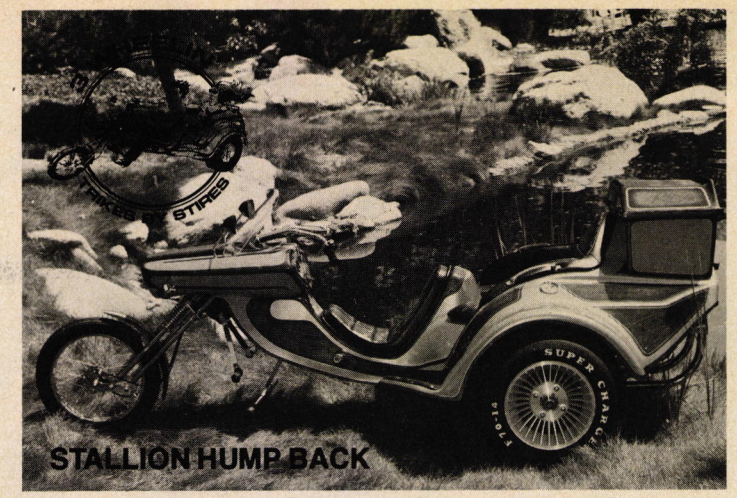
Which is why you don't aim an MX Ace off onto the racetrack with a playbike. All he'll do is ride it like a motocrosser. The right way to test it is with the kind of guy aboard who'll buy it. A duffer. A semiskilled dirt rider. Me.

I got on the orange Suzuki and noticed things Ace MXer didn't. Like the fact that it has a nice, low seat—the tradeoff for having a 7.1-inch front, 5.0-inch rear wheel travel. And like the flip-up seat that hides the oil injection system's 1.3-quart tank and the tool kit. The 246cc two-stroke case-reed engine fires right away with a moderate kick, the gearbox is smooth and short-throwed, and the whole business feels just fine, thank you.

Three hours of constant riding later it was still just fine. I'd ridden for an hour in a creek (it ran perfectly until the spark plug cap shorted out), up a mountain or two and chased some wildlife along back trails. And it was out on one of those trails that I stopped the bike, got off of it and stared at it for a while, knowing that I should make some kind of Serious Dirt Guy notes on what it was or wasn't doing. Only—and this is the core to how you really measure progress in dirt bikes—it didn't seem to warrant all that. It just . . . *worked*. No matter how stupid I was in that dirt playground, it saved me. On the sand in fifth gear or in first, on the rocky bluff, hanging by a knobby or in the river, it was always better than I was.

How can you dislike a motorcycle like that? For $1239, a guy can buy this orange Suzuki and just ride the wheels off of it until it won't spark any more. I'm convinced of that—not only by the way it worked in the playground, but also by what reliable dealers tell us, which is that after they sell a TS/DS250, they never see it again until trade-in time. They're *that* duffer-proof.

So you can have your unobtainium swingarms, MX Aces of America, and you can jeer at the DS250's fake RM styling all you want. I don't care. As soon as I get a waterproof plug cap, I'm riding up the creek. You guys can have the exploding berms; I'll take the DS250T, the bike that makes even *me* a competent dirt rider. —*Steve Thompson*



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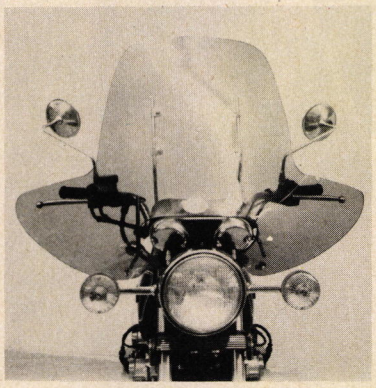

The Torque Fairing style windshield is made from 1/4" plastic for hi-impact, wind resistant riding. Measures 38¾" wide by 27" high. All necessary mounting hardware comes with this fairing. Hardware is adjustable to fit most motorcycles (except Harley Davidson). Available in Clear and Smoke. Snap Vent models available.

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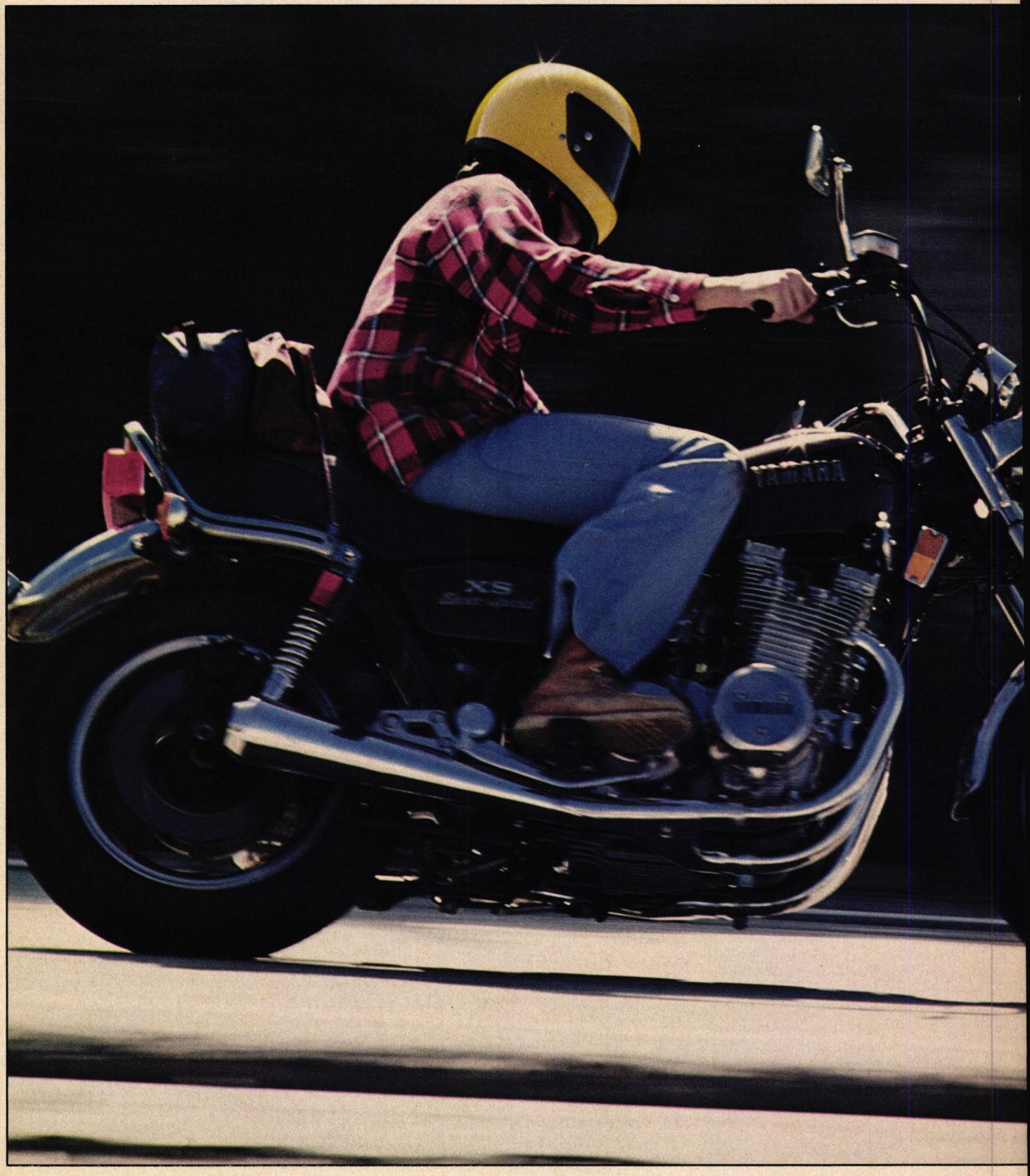
ROAD TEST:

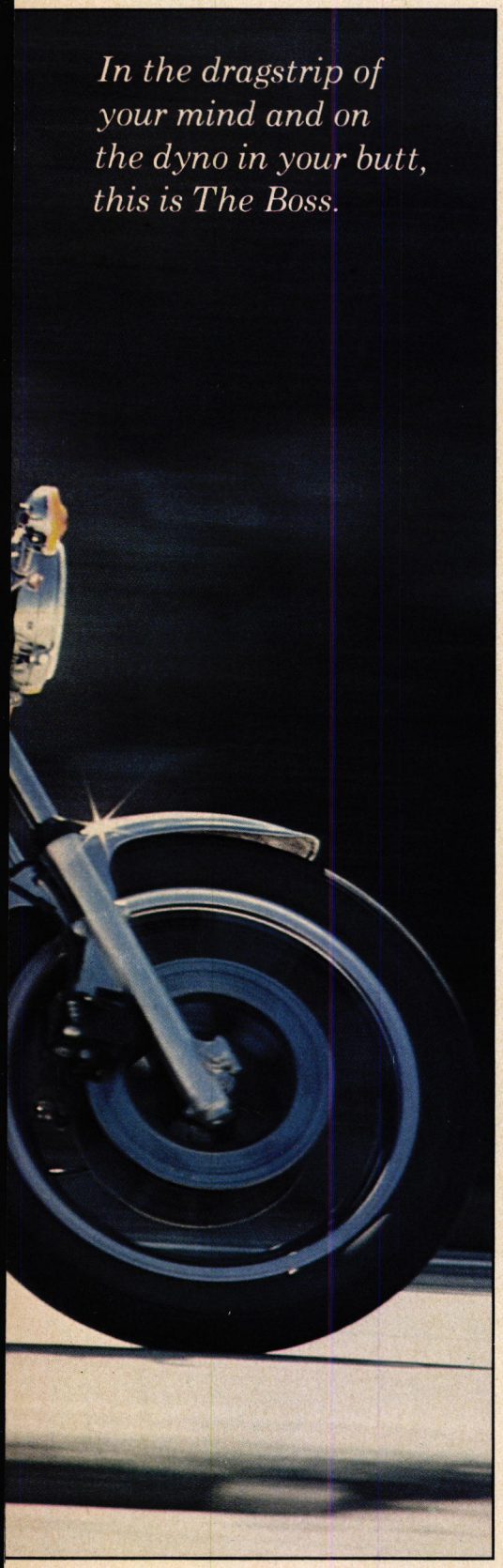
Yamaha XS1100SG Special

PHOTOGRAPHY: JIM COOK



BY DAIN GINGERELLI

In the dragstrip of your mind and on the dyno in your butt, this is The Boss.



You can't talk about the Yamaha XS1100SG without mentioning its engine. Because dyno curves and quarter-mile times aside, this four-cylinder monster *feels* like it hammers out more raw, seething horsepower than any other motorcycle on the market.

Period.

That didn't happen by accident. Yamaha planned the Eleven to be *the* fastest production motorcycle in the world as it was being developed prior to its 1978 introduction. But whether it ever succeeded doesn't matter; because any time you thwack open the throttle on this or any other XS Eleven, it lunges down the road like an 1101cc pea that's been launched from the Jolly Green Giant's slingshot. That's why the story of the XS Eleven Special isn't just its sheer speed, but the short time it takes to reach its maximum, never very long.

You would think that with the tightening of the EPA's clean-air regulations for 1980, the Eleven might have lost some of its warp-speed power this year. And you would also expect cold morning warmups to take longer than on previous models, thanks again to that same EPA-lean carburetion. But even though the new Eleven does take longer to get the chill out of its bones, once it does, there is no noticeable difference in power between this year's bike and last year's. In fact, our 1980 Eleven posted a .02-second-*quicker* quarter-mile time, clocking an 11.94-second run.

You can credit the retention of those '78-'79 performance standards to the many hours that Yamaha's R&D team spent on the dyno and out at the test track trying to keep this engine running strong. And most of the solutions they came up with for meeting the new emissions regulations followed conventional practices, such as leaning out the jetting even further than on last year's model and reducing the duration of the camshafts. But one minor oddity that emerged from those test sessions was the replacement of last year's No. 137.5 main jets with *two* different smaller sizes—No. 115s in each of the two outer carbs and No. 120s in the inner ones.

That unusual jetting was precipitated by the styling department's insistence on keeping the Eleven's parallel-pipe exhaust system, the type used on every Japanese transverse four except Kawasaki's KZ650 SR. The Eleven's system routes the two left-side head pipes into the left muffler and the two right pipes into the right muffler. And while that offers a symmetrical bank of chromed pipes sweeping down in front of the engine, its tuning is imperfect. The two cylinders that feed each muffler are phased 180 degrees apart, meaning that the firing sequence between them is uneven (180 degrees vs. 540 degrees). Since the scavenging effect of an exhaust system relies upon the timing of the pressure waves that travel through it, having an uneven firing sequence means also having uneven scavenging. And since the effective mixture-strength during any combustion cycle is affected by how well the wastes of the previous combustion were expelled, uneven scavenging between two cylinders means that one will run leaner than the other.

Yamaha could have opted for the Kawasaki SR's system, linking the two outer cylinders into one muffler and the two inner ones into the other for equal scavenging. But because the stylists didn't want the "plumber's nightmare" clutter that kind of a system would have given the Eleven, the engine guys simply corrected matters by using different-size main jets. None of this had been a problem up until the more-stringent emissions regulations of 1980; but now that the jetting must be so marginally lean to keep the emissions under control, you may see more bikes with individually jetted cylinders to provide the leanest practical mixture.

Emissions also played a role in Yamaha's decision to soften the Eleven's cam timing. There is less overlap now between the open cycles of the intake and exhaust valves, which yields both improved performance and cleaner carburetion at low and medium rpm; and since that range of engine speed coincides with those used in the EPA test cycles, the 1980 Eleven can meet the new regulations more easily. And to compensate for that milder cam timing and keep it from slowing down the new 1100, the cylinder head was fitted with larger valves—two millimeters larger on the intakes (38mm vs. 36mm) and one more on the exhausts (32mm vs. 31mm).

Ironically, those larger valves could have been in this engine from the very beginning. The Eleven was originally designed as a 1000, and only through later experimentation did Yamaha determine that 1101cc better suited the company's mandate to build *the* fastest. But somehow, the final stages of development failed to materialize larger valves, so all Elevens up until now have had valves intended for the original 1000cc engine. Increasing the valve di-

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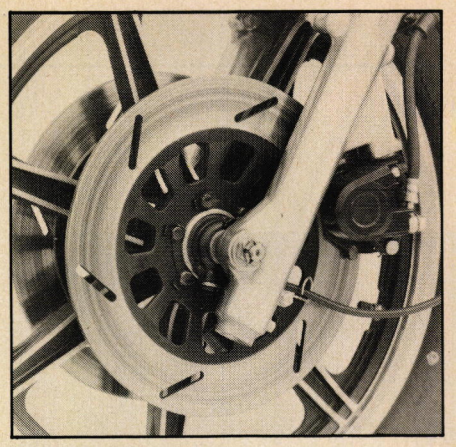
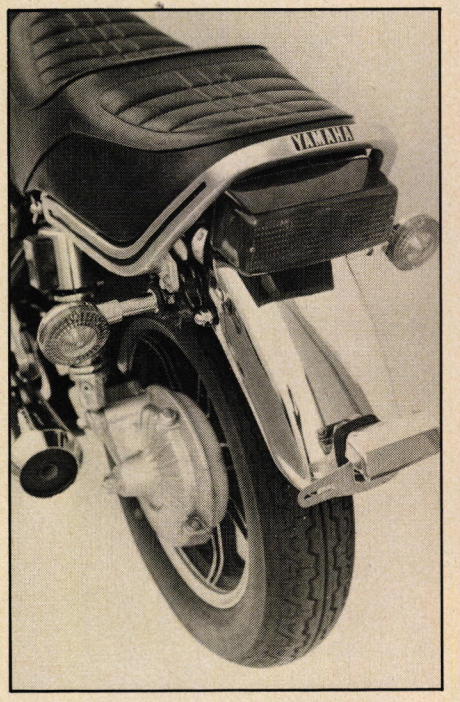


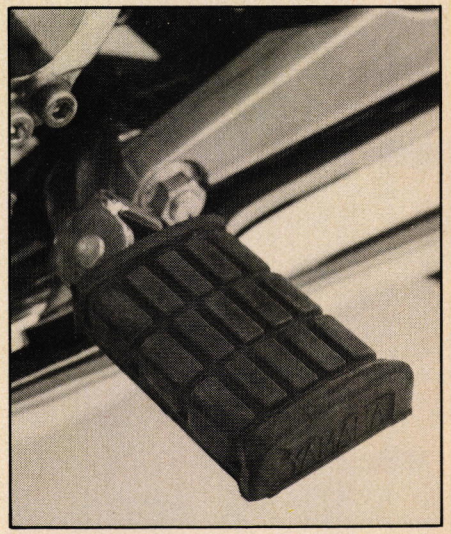
Perforated disc rotors

More for style than function.



Taillight fixture and aluminum handrail

Losing a grip on the Special concept.



Flat-top footpegs for the SG

Floorboards for the Eighties.

ameters, though, necessitated enlargement of the valve pockets on the piston domes, resulting in a drop in the compression ratio from 9.2:1 to 9.0:1.

Big valves or not, the combination of shorter-duration valve openings, less compression and additional carburetion leanness would not seem to add up to a 1980 Eleven Special that is as fast as its predecessor. But the new bike's dyno figures don't reflect any significant drop in peak power, and its quarter-mile time speaks for itself. If anything, there's a *boost* in midrange wallop, something that previous Elevens already had in great bucketsful, anyway.

Undoubtedly, the Eleven Special's unparalleled *sensation* of AA/Fuel performance is largely a product of that awesome middle-rpm torque. Because unlike most other high-performance four-cylinder motorcycles, the Eleven's tach needle needn't be crowding the red zone just to get your adrenaline flowing on the main jet. Simply dialing the 1100's four 34mm constant-velocity Mikunis to WFO, even at highway-cruising speeds, is answered with breathtaking acceleration. The rear end momentarily rises up on the soft suspension in typical shaft-drive fashion, and then *wham!*—you're no longer in the vicinity. And experimenting further with roll-ons at various combinations of gear selection and rpm leaves you with the distinct impression that there's not all *that* much difference between the acceleration at high rpm in low gear and that at medium rpm in top gear.

If all of this paints a picture of the XS1100's rubber-mounted engine as being

some sort of hybrid racing-only motor, forget it. With a temperate hand on the throttle, the Eleven Special has one of the friendliest engines in town. Our test bike gave us over 41 mpg under normal riding conditions (our '79 Special logged a best of 36 mpg) and handled stop-and-go hassles of snarled traffic like a commuter-hardened pro. But unlike most single-purpose urbobikes, the Eleven Special has the enviable ability to, with just a twist of the throttle and some running room, almost instantly reduce the images in its rear-view mirrors to small, only slightly fuzzy specks.

Not all of Yamaha's XS1100 development has been geared toward making more horsepower; some has been devoted to the engine's problems in *dealing* with it. That's why the 1980 Special has an oil cooler bolted to the frame's downtubes just ahead of the engine. And that's also one reason why the 12-volt battery tucked beneath the redesigned stepped seat is more powerful this year. Of course, the prime motivation for that move was the removal of the kickstarter arm and all of its internal mechanisms on the 1980 Eleven, thereby enrolling yet one more machine into the fast-growing electric-or-else club.

Not having a kickstarter, of course, will never be a source of aggravation unless the battery goes dead. But everyone who buys a new XS Eleven or *any* 1980 and later motorcycle from now on will feel the barb of federal intervention every time he looks down at his 85-mph speedometer. All new street bikes have them, and Yamaha's version even includes a redline at all speeds above 55 mph and a red block around the double-nickel, both to remind you that you are about to enter the no-go zone.

At least the Feds haven't yet figured a way to regulate suspensions, although Yamaha has done some tampering in that area on its own. The air/spring leading-axle fork is now made by Showa and has 37mm stanchion tubes, replacing last year's 38mm Kayabas. The shocks still are Kayaba-built and retain their four-position rebound damping adjustments, but there are new chromed covers on the shock springs that serve as home base for rectangular side reflectors. Yamaha's trend toward stiffening suspension rates on its new street bikes initially led us to believe the SG got the same treatment, because its ride didn't feel as smooth as the SF's. But suspension specifications reported to us by Yamaha show that the SG and SF do, in fact, have the same suspension rates. We can conclude, then, that the SG's ride will soften as the suspension components break in.

Styling is another important aspect of the boulevard mystique, perhaps the *most* important. And although Yamaha Specials have, in their two years of existence, captured the Great American Motorcycle look better than any other attempt, the odd rear-end styling on all 1980 Specials seems not in keeping with that image. It consists of a bulky, cast-aluminum seat rail and a taillight tucked in right behind the seat. Further down the fender is a separate license-plate light in a little chromed housing not unlike something you've seen before, either on a 1976 Yamaha street bike or a customized 1948 Mercury coupe. It's not a bad styling lick in itself, but it seems incongruous with the All-American boulevard look that Yamaha seemed to have down pat. Not only that, the rail is so close to the seat in some places that you can't get your fingers wrapped around it, and it's so fat that you must pry open the ends of your bungee cords so they'll fit around it.

None of these little complaints, though, are reason enough to not buy an XS1100SG, especially if you're fond of teardrop tank styling and enough unchained power to displace your eyeballs about three inches into their sockets. The Eleven Special gives you more of that than you can find anywhere else, and is a nifty all-around bike besides. Even the pullback handlebar, unpleasant on most other customs, doesn't get in the way of rider control and comfort. Instead, it settles you down into a non-abusive ride that's most noticeable in stop-and-go riding, and it offers plenty of leverage for manuevering the 571-pound beast.

All of which indicates that the formidable success the Eleven Special has enjoyed should carry on. But looming on the horizon are two new custom-styled shafties in the same displacement range from Suzuki and Honda. In particular, the Honda CB900 seems most likely to hit the Special right where it lives. It not only employs the same heavy dosage of bad-dude styling as the Yamaha, it offers other sophistications such as air suspension at both ends and a two-speed transfer case that can provide ten separate gear ratios, five for performance and five for mileage.

Still, if either of those new bikes intends to take home the lion's share of the one-liter custom market, it'll have to do so on the Eleven's terms, by generating bigger numbers on those all-important dynamometers that are standard equipment on every rider's rear end. Because regardless of what all of the other usual performance indicators might say—the real dynos, the quarter-mile times and the top-speed numbers—it's what you *feel* that counts. And in that respect, the Yamaha XS1100SG is The Boss. •

Ride Review

• Forget the silly handlebars, ignore the trendy styling. This XS11 is all about what every other XS11 has always been about: immense, cascading, unstoppable King-of-the-World *Power*. Turn the grip and the thing just squirts away into infinity. No muss, no fuss, no screaming-engine stuff, just the same kind of endless acceleration that put Buzz on the Moon.

That makes it hard for me not to like the Eleven Special. I hate the bars, the flat footpegs, the Joan Claybrook Signature Model 85-mph speedo (complete with redzone from 55 mph onward) and the absurd rear-end styling. But because the bike works like the standard XS11 in most important ways, I can forgive it anything as long as that awesome engine gushes power like some runaway hydroelectric facility. Get rid of the Low Rider stuff and gimme the motor. Next stop: Alpha Centauri. —*Steve Thompson*

• Any motorcycle this good deserves two things. One is a radar detector. The other is a pair of decent mirrors to help you detect Smoky sneaking up from behind.

These two items are necessary because of horsepower that demands to be used. Sure, I appreciate the fact that the Special doesn't bob on its suspension like a Ford LTD anymore, and I like the new firmer seat. But what really gets me motivated about this bike is the way you can summon forward thrust with an effortless twist of the wrist. Only a Boeing 747 on takeoff can duplicate the powerful and authoritative way the Yamaha Eleven accelerates when you apply the gas.

I still don't like the way the Eleven Special looks—especially the new fanny treatment that undercuts the classic styling—but it has that thrill inside it that keeps me coming back for more.

—*Michael Jordan*

• Most of the things that attracted me to XS Elevens all along haven't changed in this year's Special. The same hypertense personality still lurks just below the surface, waiting to be loosed. And even though I might never make use of all the Eleven's gut-wrench juice, it's comforting to know that no matter what gear I'm in, no matter how low in the rev-range, all that's necessary to be long gone is to dial in more revs.

As far as the basic XS1100 package goes, I've liked it before and I still like it. What is a surprise, though, is that this year's high-chic version appeals to me. Now, the rear-end styling and the would-be floorboards I can take or leave. But the seat/handlebar relationship is just about right. Not because it's especially comfortable—it isn't. But if I sit just right, the long clutch cable looping away from the reach-for-it handgrip just manages to hide the 85-mph speedometer.

—*Larry Works*

Continued

Yamaha XS1100SG

SPECIFICATIONS:

IMPORTER: Yamaha Motor Corp., U.S.
6555 Katella Avenue
Cypress, California 90630

CATEGORY: street

SUGGESTED RETAIL PRICE: $3879

ENGINE

Type	four-stroke transverse vertical four
Valve arrangement	double overhead camshaft
Bore and stroke	71.5mm x 68.6mm
Displacement	1101.6cc
Compression ratio	9.0:1
Carburetion	four 34mm Mikuni constant-velocity
Air filter	washable bristle-covered foam
Lubrication	wet sump
Starting system	electric only
Ignition	battery / dual electronic pick-ups (with vacuum advance) / dual coils
Charging system	12-volt; AC generator, voltage regulator, rectifier

DRIVETRAIN

Crankshaft-to-jackshaft (primary) drive	Hy-vo chain, 1.657:1 ratio
Jackshaft-to-clutch (secondary) drive	straight-cut gears, 1.0:1 ratio
Clutch	wet, multi-plate
Transmission-to-jackshaft drive	straight-cut gears, 0.936:1 ratio
Jackshaft-to-driveshaft drive	spiral-bevel gears, 1.056:1 ratio
Driveshaft-to-rear-wheel drive	spiral-bevel gears, 3.30:1 ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.24	12.08	6.0
II	1.63	8.78	8.2
III	1.29	6.94	10.4
IV	1.03	5.58	12.9
V	0.88	4.77	15.1

SUSPENSION/WHEEL TRAVEL, IN.

Front	air-spring, 37mm stanchion tube diameter / 6.8 in. (173mm)
Rear	5-way adjustable spring preload, 4-way adjustable rebound damping / 4.2 in. (107mm)

BRAKES

Front	dual single-action hydraulic calipers, 11.8-in (300mm) discs
Rear	single-action hydraulic caliper, 11.8-in. (300mm) disc

TIRES

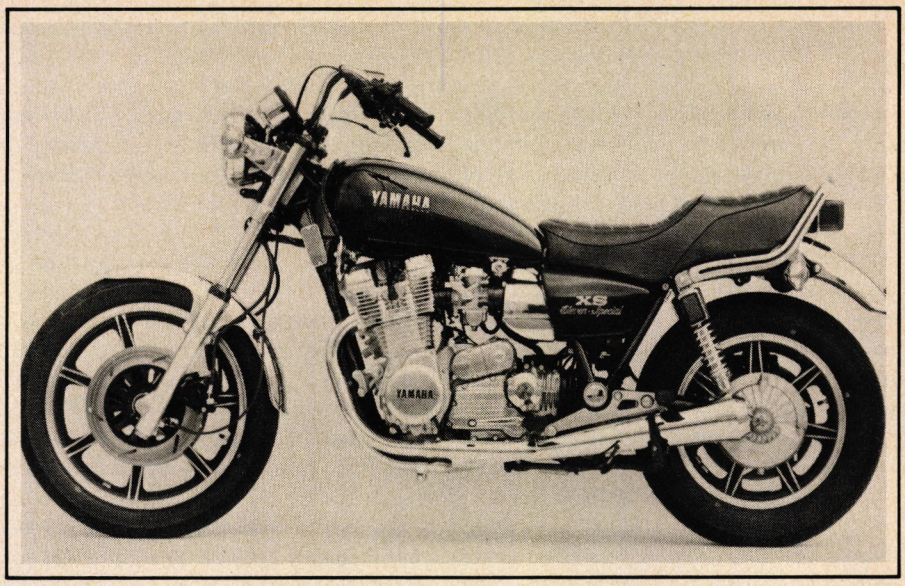
Front	3.50H19 Bridgestone Mag Mopus S707
Rear	130/90-16 Bridgestone Mag Mopus S708

DIMENSIONS AND CAPACITIES

Weight	572 lbs. (259.4kg)
Weight distribution	46.2% front, 53.8% rear
Gross vehicle weight rating	1090 lbs. (494kg)
Wheelbase	61.1 in. (155.2cm)
Seat height	31.1 in. (790mm)
Handlebar width	28.5 in. (724mm)
Footpeg height	12.0 in. (305mm)
Ground clearance	5.6 in. (142mm), at head-pipe clamp
Steering head angle	29.5 degrees from vertical
Front wheel trail	5.0 in. (127mm)
Frame	tubular mild steel, double front downtubes
Oil capacity	4.3 qt. (4.1*l*)
Fuel tank	steel, 3.8 gal. (15.9*l*), including 0.6 gal. (2.4*l*) reserve
Instrumentation	speedometer, odometer, tripmeter resettable to zero, tachometer

PERFORMANCE

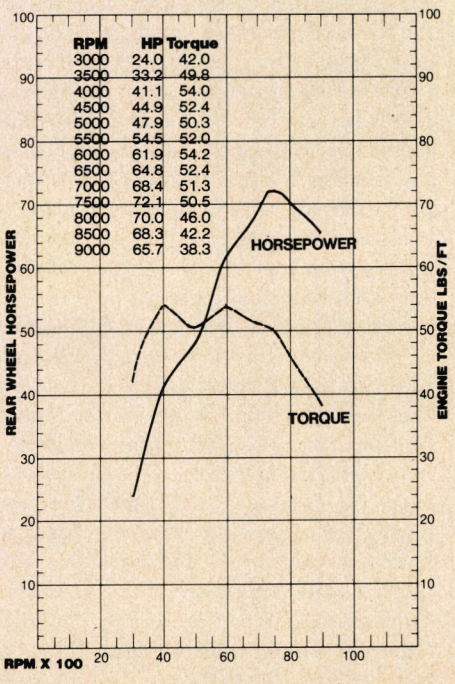
Fuel consumption	42 to 47 mpg (17.9 to 20.0km/*l*)
Range, maximum	160 to 179 miles (257 to 288km)
Range, reserve only	25 to 28 miles (40.2 to 45.1km)
Speedometer error, 30 mph indicated	29 mph actual
Speedometer error, 60 mph indicated	60 mph actual
Best ¼-mile acceleration	11.94 sec., 112.6 mph (181 kph)
Top speed (calculated)	135 mph (217 kph)
Stopping distance from 30 mph	33 ft. (10m)
Stopping distance from 60 mph	129 ft. (39m)

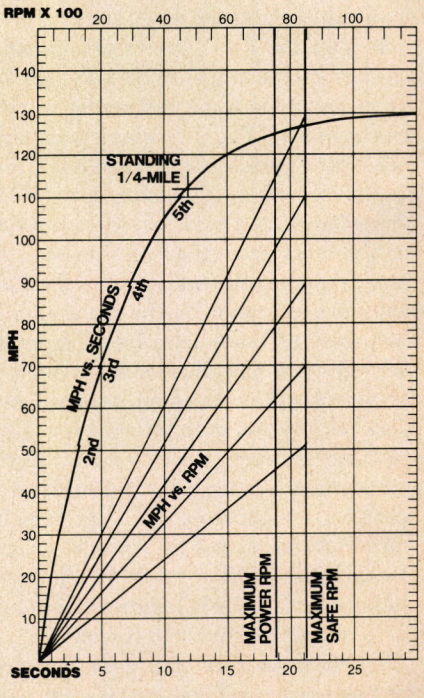


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Yamaha XS1100SG	11.94/112.6	135	572	129
Yamaha XS1100F	12.12/111.9	134	573	136
Yamaha XS1100SF	11.96/113.2	136	563	121
Suzuki GS1000LN	12.39/108.4	130	526	129
Kawasaki KZ1000 MkII	12.06/110.3	130	545	129
Kawasaki KZ1000ST	12.23/111.0	132	574	130

PERFORMANCE:





Cycle Guide's

SPECIAL EDITION

Suspension Buyer's Guide

Everything you ever wanted to know about suspension—front or rear, street or dirt:
—How it works
—How to buy the right suspension for the job
. . . and, of course, the most complete selection of air, gas, or oil suspension components ever!

Suspension can make the difference between a motorcycle you can't wait to get onto and one you can't wait to get *off* of. With the right suspension under it, even an old clunker of a bike can be gratifying to ride. Conversely, a potentially great motorcycle can feel like a refugee from a salvage yard if its suspension is worn or improperly set up.

Since suspension forms the only link between the ground and the bulk of the motorcycle—which includes you and just about everything else but the wheels—and since everything a motorcycle does is in some way an interaction with the ground, it only makes sense that a motorcycle is no better than the fork and shocks that support it. Try, in fact, to recall one motorcycle that had crummy suspension but was considered the best bike in its class. Unless your criteria are peculiar or your memory particularly imaginative, you won't think of one. Suspension is *that* important.

Fortunately, most new bikes these days are delivered with suspension components whose quality ranges from pretty good to state-of-the-art. If you read magazine road tests, you probably already know that. So you might wonder why you need to know or care about aftermarket forks and shocks. The answer is simple: Chances are that sooner or later, you're going to need one or more replacement suspension components.

There are lots of reasons. First, not everyone owns a new bike. And the older a motorcycle is, the more likely it is to need some fork or shock work, either because the suspension wasn't very good to begin with or because it has worn out. Another possibility is that your bike will be loaded down with more touring gear or other equipment than its suspension was designed to handle. Or, maybe you just want to upgrade your bike's suspension to the highest possible level, even though what it has isn't all that bad. This is common in motocross, where existing technologies wear out almost as quickly as existing suspensions. Or perhaps the action of your bike's fork or shocks just doesn't suit your particular riding style. One of the harsh realities of any mass-produced motorcycle is that unless it is a narrow-focus, specialized model destined to be ridden by people who fit in a limited range of physical dimensions—and cost is no object—its suspension *has* to be a compromise. And if you're an uncompromising rider, a compromised suspension won't do.

The point is that for one reason or another, you can end up in the market for anything ranging from a set of new fork caps to an entire suspension-system transplant. The problem, though, is what to do about it. There is, as you are about to see, an incredibly wide variety of aftermarket suspension gear available, each brand claiming to be the best or to have the most significant features. And unless you're already a suspension engineer or have a degree in fluid mechanics, it's damned tough to figure out which model of what brand of fork or shock will give your bike what it needs. Thankfully, most aftermarket suspension companies have implemented ways of helping you make those decisions, ranging from impressively detailed catalogs and suspension tuning guides to personalized service that's as close as the telephone or mailbox. Still, the more you know about suspensions beforehand, the better you can make use of each company's services and the closer you can come to designing the suspension of your dreams.

THE RULES OF THE RIDE:

Contrary to popular mythology, there is no voodoo, witchcraft or sleight of hand connected with suspension design. It's a science, pure and simple. And its goal is to keep both wheels on the ground as much as possible while isolating the rider from the unevenness of the terrain and preventing the up-and-down movement of the chassis from causing a loss of control. On a low-demand, basic-transportation bike that's only ridden moderately and on well-paved roads, achieving that goal is no big challenge. But anyone who's ever watched a motocross knows that suspending one of those bikes must be a monumental problem.

Also, a shock is not a shock is not a shock. You can't just take a suspension piece that performs superbly on one bike and expect it to work just as well on another. Each model of motorcycle has differences that determine its suspension's final configuration and state of tune. Some of those differences are fixed values such as the bike's weight, weight distribution, steering geometry, center of gravity, suspension length and method of shock or fork attachment. And there are variables, too, like rider weight, accessory weight and placement, intended usage and rider aggressiveness. The variables are examples of factors you must take into account when selecting suspension components; the fixed values for the most part are not, since they are what the factory must consider when designing the bike. If you can get what you want by plugging the appropriate variables into the aftermarket manufacturer's tuning guide, by all means, do so. If you can't, however, you'll then need to know more about the differences in shock and fork design and how they apply to your particular problem.

DAMPING DYNAMICS:

You can develop a better understanding of suspension behavior if you remember that a motorcycle fork or shock actually has *two* separate suspension functions—springing and damping—contained in one package. Springing is the function of, obviously, the spring that's either wrapped around the shock or coiled inside the fork. Its job is to hold up the motorcycle and provide a variable-length connection between wheel and chassis so that one can go up-and-down independent of the other when the motorcycle hits a bump.

If left to its own devices, though, a motorcycle suspended by springs alone would be little more than a motorized golf ball. Because once a sprung object hits an obstacle, like a bump, it not only bounces up-and-down once, it wants to *keep on* bouncing, just like a golf ball. And that's where damping comes in. It is, quite simply, friction that is deliberately induced inside the fork or shock for the express purpose of preventing the golf-ball effect. Ideally, damping (not dampening) on a motorcycle should not interfere with the upward movement of the wheel on small bumps, yet provide just enough resistance on bigger ones to prevent bottoming. Once the suspension is compressed, damping controls the rate at which the wheel returns to its normal position. If the damping is insufficient during return, the wheel will extend too quickly and there will be some repeated bouncing after a bump is passed. If the damping is too great, the wheel will return too slowly, yielding a suspension that won't be able to react quickly enough to the undulations of the terrain.

Damping that occurs on the wheel's upward stroke is called compression damping, since that's when the suspension is compressing. Damping during the return stroke is rebound damping, which needs to be greater than compression damping.

In every modern motorcycle, damping is caused by forcing oil through small holes or passages inside the suspension unit. The main body of the unit, be it a fork or shock, is at least partially filled with oil, and a piston-like device (attached to the end of either the fork tube or the shock shaft) tries to compress the oil, first as the suspension compresses and then as it extends. Since oil is a liquid and liquids cannot be compressed, the fork would not be able to move without the holes or passages that provide a means of escape. The smaller the area of the holes, the less oil they can pass and so the greater the damping effect.

FORK DAMPING:

All front forks use the same basic damper design, in which the piston is a large ring on the end of the fork tube (the part of the fork attached to the triple clamps). The ring encircles a long, thin tube called the damper rod that extends down through the inside of each fork leg assembly and attaches to the fork slider (the part to which the front axle affixes). When the wheel moves up and down, the ring on the end of the tube tries to compress the oil, but some can escape by passing between the ring and the damper rod. The amount of damping the fork has, then, is determined by how closely the ring fits around the damper rod.

Actually, not *all* of the damping is regulated by the clearance between the ring and the rod. The differential between compression and rebound damping is determined by two separate holes, one at the top of the damper rod and one at the bottom. As the fork tube enters the fork slider during compression, its mass displaces some of the damping oil, causing the oil level to rise. But since it is trapped in a confined area, the only way the oil can rise is to travel through the hole at the bottom of the damper rod, up through the center of the hollow rod and into the area above the damping chamber around the base of the fork spring.

On the rebound stroke, the process is reversed, except that the oil is then forced to leave the damping chamber through the upper hole where it, and the oil that's above the damping chamber, can go down through the hollow damper rod and re-enter through the bottom hole. And if the bottom hole is larger than the top one, the rebound damping will be greater than the compression damping.

SHOCK DAMPING:

In a shock, things are more complicated because of its compactness. Damping is provided by a snug-fitting piston at the end of the long rod that protrudes from the body. There are several different internal designs but, like forks, most shocks work on the same principle: by forcing oil through holes in the piston as the shock rod moves it up and down.

Achieving greater rebound damping in a shock is accomplished by having a number of holes in the piston, each of which can be sealed by spring-loaded balls or washers. The valves allow oil to flow only through some holes on compression and others on rebound, thus the amount of damping in either direction can be determined by the size of the respective holes.

The only remaining problem, then, is what to do when the shock piston enters the body and displaces some of the oil, causing the level to rise. If the body were completely filled with oil, it would either burst when the bike hit a bump or not allow the shock to move at all. So to accommodate that rise, a quantity of oil is omitted from the shock body.

SHOCK TYPES:

Although you've just read a simplified description of how a basic shock works, some of the problems shock designers have had to cope with aren't so simple. And the biggest problems, which dealt with the air that had to be left in the oil, occurred about seven or eight years ago when long-travel motocross bikes first were being developed. When the shock was worked very hard, as was and is the case on long-travel bikes, the air mixed with the oil, causing it to foam, or "aerate." Since aerated oil is not as thick as pure oil, it can pass through the shock's piston holes much more easily, causing a decrease in damping, called "fade." And aerated oil doesn't dissipate heat as well when aerated, so the shock can also overheat.

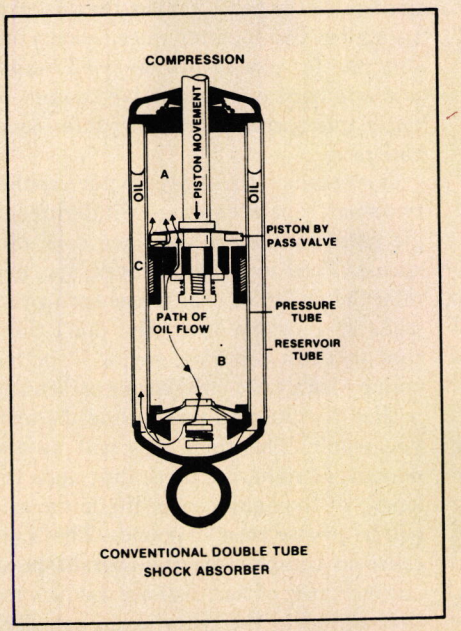
Today, the most popular solution to long-travel shock problems is to use the DeCarbon-type shock, named for its inventor. Essentially, its damping pieces are the same as on a conventional shock, but there is a thick, solid piston placed about three-quarters of the way down inside the body. The piston is sealed around the sides but can float up and down, and there is high-pressure nitrogen below it and damping oil (but *no* air) above. As the shock rod strokes down into the body, the rise in damping oil is accommodated by the floating piston. It just moves downward as needed, compressing the nitrogen even further. And with no air in the oil, it is free of aeration and dissipates the heat more efficiently.

A drawback to the DeCarbon design is that the floating piston and the nitrogen chamber take up room that could be used for additional shock stroke. That's why most DeCarbon shocks now have the floating piston in a separate reservoir that either is attached to the shock body or at the end of a long hydraulic hose.

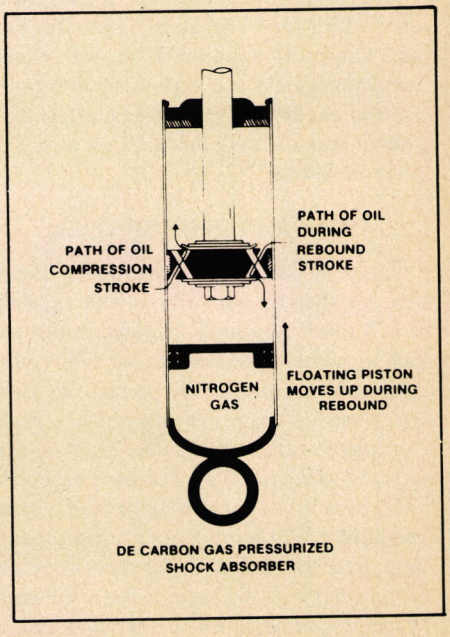
Not unlike DeCarbon shocks are bladder-type dampers, which use a tough neoprene bag to separate the pressurized nitrogen from the oil. When the shock rod enters the body, the bladder accomodates the rise in damping oil by contracting so it takes up less space.

Another style of pressurized shock is the emulsion type, which takes a simple but effective approach to the problem: If the oil wants to aerate, *let* it. The shock is charged with high-pressure nitrogen, but there is nothing separating it from the oil. The damping holes are calibrated to give the desired damping results with fully nitrogenated (as opposed to aerated) oil. When the shock shaft enters the body and tries to raise the oil level, each individual nitrogen bubble compresses slightly, which has the same effect as letting the oil rise. Emulsion shocks sometimes come with reservoirs, but they only provide a larger oil supply and do not increase the piston travel as do the DeCarbon reservoirs.

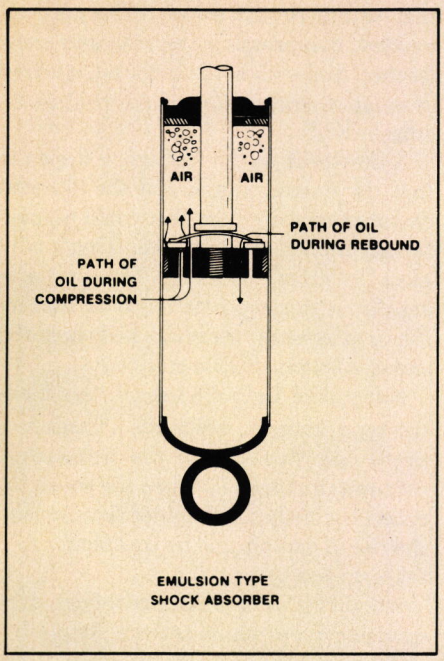
One more variable is the gas-bag damper, a conventional shock except that it contains a little neoprene bag of pressurized freon that fills the area normally



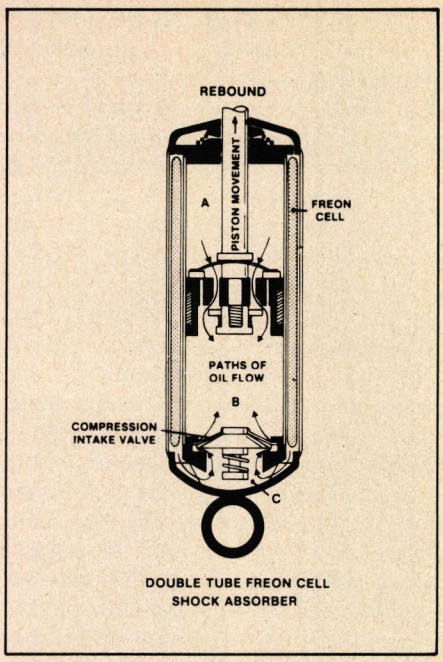
CONVENTIONAL DOUBLE TUBE SHOCK ABSORBER



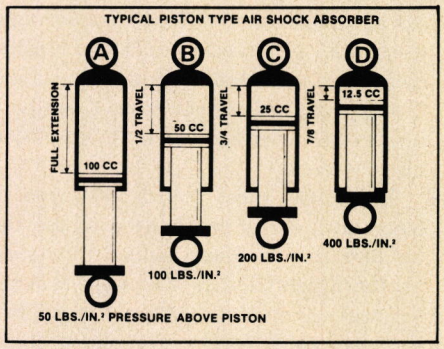
DE CARBON GAS PRESSURIZED SHOCK ABSORBER



EMULSION TYPE SHOCK ABSORBER



DOUBLE TUBE FREON CELL SHOCK ABSORBER



occupied by the air. Since the freon is contained within the bag and, like with the DeCarbon arrangement, there is no air in the oil, there also is no aeration.

If there's an advantage to freon shocks, it's that they're almost as inexpensive to manufacture as regular shocks, since that's basically what they are, although they perform much better. Because neither type has as large an oil supply as the others, though, they run much hotter. That's not a big problem on most street-bike shocks, which is why few of them are of the pressurized variety. And the freon shocks usually are capable of holding up reasonably well on motocross bikes that aren't ridden at expert- or pro-level speeds, although they're excellent for most other types of off-road use.

For serious motocross riders, DeCarbon or bladder-type shocks are the best bet, and the most expensive, as well. Some emulsion shocks can cope with WFO motocross use awhile, but they generally fade sooner and are more inconsistent than DeCarbon shocks.

THE RATES OF SPRING:

Once you settle on a certain set of dampers, you then have to sort out which springs you'll need. Again, the tuning guides put out by some suspension firms offer charts for just that purpose. But you should know a few spring basics, anyway, just to avoid confusion. Like spring rates. Every spring is rated in the number of pounds needed to compress it one inch. A 100-pound spring requires a 50-pound force to compress it half an inch, 75 pounds for three-quarters of an inch and 100 pounds for a full inch. That, of course, refers to a straight-rate or single-rate spring, which means that it will require the same amount of additional pressure to compress it each additional inch. Another 100 pounds (a total of 200) will compress the spring one more inch, and so on.

There also are dual-rate and triple-rate springs. As the name implies, the dual-rate spring has two separate rates, usually one soft rate for compliance on small bumps and one hard one for the big thumps. A triple-rate spring is one with three separate rates.

It is common these days to put together two short, separate springs of differing single rates to achieve one long dual-rate spring. They work just as well, too, and offer the ability to change one spring rate while keeping the other. But don't think that you can combine, say, a 70-pound spring with a 120-pound spring and end up with a 70/120 dual-rate spring, because you won't. The final rate will be 120 pounds, all right, but depending upon the length of the light spring, the initial rate will be greater than 70 pounds. That's because in compressing the overall spring one inch, part of that distance was devoted to compressing the heavy spring as well as the soft one. That already has been taken into account on one-piece dual-rate springs, though, so their ratings are accurate.

A few companies also make progressive-rate springs, mostly for forks rather than shocks. They're wound so that each coil is closer to the one before it than the one after, giving a progressive rate. The amount of progression depends upon, among other things, the rate of decrease in the coil pitch, but the net result is that an ever-increasing amount of force is required to compress the spring each additional inch. If the spring required 100 pounds to compress one inch, it might take, say, 120 more pounds (220 total) to go one more inch, 140 more (360 total) for another, and so on. Some people call dual-rate and triple-rate springs progressive, but they're mistaken when they do so.

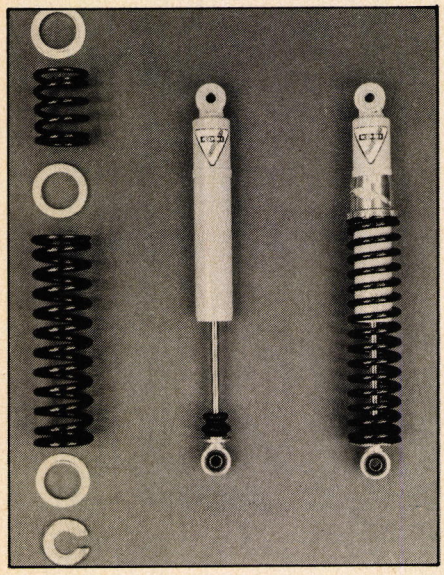
Air springing is another way to achieve a progressive spring rate. This is because of Boyle's Law, which states that the pressure exerted by a gas (like air) is inversely proportional to its volume. So if you have 50 psi in a closed container (such as a fork or a shock) and you halve the volume of that container (by compressing that fork or shock) the pressure inside will be doubled to 100 pounds. If you cut the volume to one-third, you triple the pressure.

This principle is applied to modern air forks in conjunction with coil springs to serve as a fine-tuning device. The coils put the suspension rate in the low end of the ball park, then air is added to adjust for the particular riding situations. This has become most effective in motocross, where track conditions can vary drastically. But air/spring forks are showing up on an increasing number of street bikes because of their ability to be set up for touring, sport or two-up riding. Air shocks, on the other hand, often have no springs, and so depend entirely on air pressure. But like air forks, their value, whether on a motocrosser or a street machine, is their ability to be tuned to suit a vast range of circumstances.

Of course, there are other items to consider when buying suspension components, factors such as what effect a new front fork will have on steering geometry, whether you really want adjustable damping or if you really need rebuildable shocks, to name a few. But if you consider your choices and ask about what you don't understand, somewhere in the buyer's guide that follows are the pieces that can make your wobbler stop wobbling, your bottomer stop bottoming and your buddy stop beating you from Point A to Point B on your favorite back road.

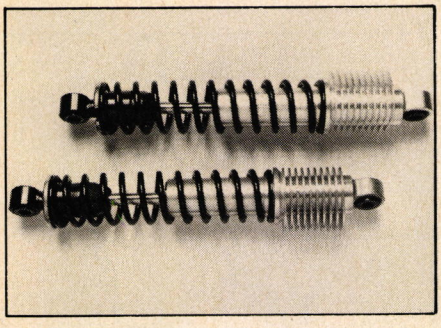
Continued

Shock Absorbers Street Bikes



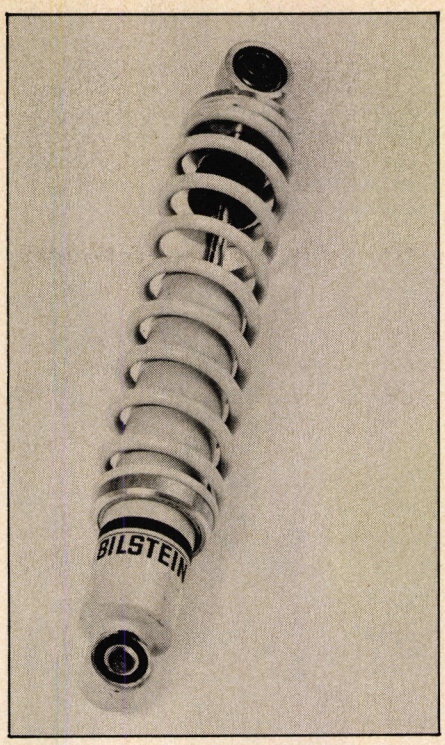
Bikoni Limited
150 Green Street
Hackensack, New Jersey 07601
(201) 489-0404

Koni gas-hydraulic standard shock pictured. Features: hardened steel piston rod, dual-rate springs, low-friction rod guides, adjustable damping and steel body. This model is designed for street, roadracing, motocross and enduro use. A two-year warranty is included against defects in the manufacturer's workmanship or materials. Brochure available.



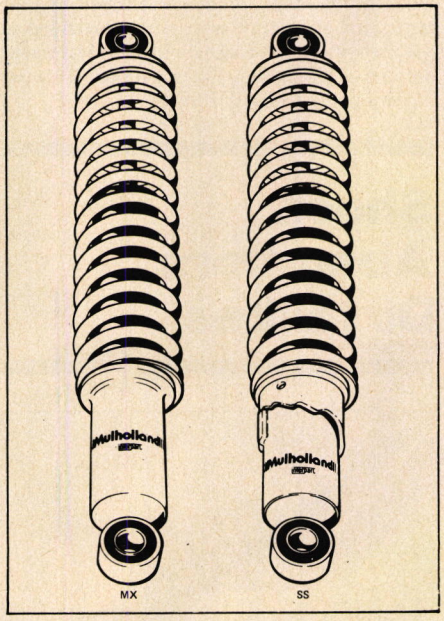
Bikoni Limited
150 Green Street
Hackensack, New Jersey 07601
(201) 489-0404

Koni finned aluminum shock pictured. Features: hardened steel, chrome-plated piston rod and an aluminum body with cooling fins. There are multiple spring rates and a special low-friction rod guide. Damping is adjustable and the shock is rebuildable. This model is designed for roadracing, enduro and motocross use. A two-year warranty is included against defects in materials or workmanship. Brochure available.



Bilstein Corporation of America
11760 Sorrento Valley Road
San Diego, California 92121
(714) 453-7723

Rising-rate gas-pressure shock pictured. Features: mono-tube nitrogen gas-and-hydraulic DeCarbon-type, 3.52-inch travel, extruded-steel body, velocity-sensitive valving (to compensate for changing terrain conditions), 10-, 12- and 14mm bushing sizes, 1¾-pound weight. Shocks have lifetime warranty to original purchaser when used according to instructions. Brochure available.



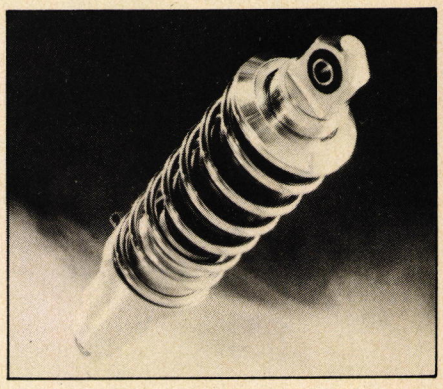
Interpart Motorcycle Products
230 W. Rosecrans Ave.
Gardena, California 90247
(213) 538-9820

Mulholland SS shocks feature black-enameled bodies, optional black or chromed springs of various rates, chromed preload collar. Units are rebuildable (Harley model excepted) and come standard with "medium" piston rods and "soft" compression valves.

Mulholland MX shocks feature orange-painted bodies with extra oil capacity, a full complement of spring rates, "soft" piston rods and "soft" compression valves. They are tunable and rebuildable.

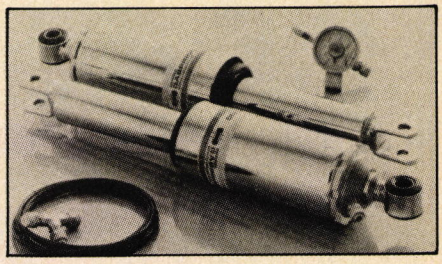
Mulholland LTG (Long Travel Gas) shocks feature orange-painted bodies, cooling fins, a low-pressure gas-displacement bag, large oil capacity, and special high-temperature shock oil. They are rebuildable and can be tuned.

Catalog, ordering information and complete selection guide are available at no charge.



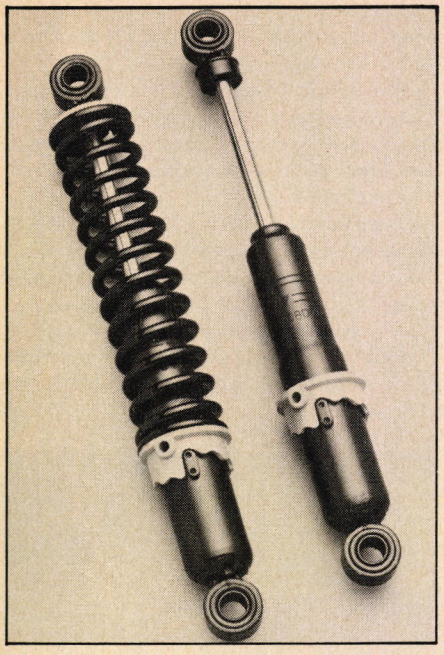
Interpart Motorcycle Products
230 W. Rosecrans Ave.
Gardena, California 90247
(213) 538-9820

Interpart/Mulholland Force 1 pictured. Features: nitrogen-charged single-tube design, 9/16-inch shock rod, aluminum alloy shock body, metal coil and air springing. This unit has molded rubber eye bushings with metal inserts and a special check valve on the shock body that automatically closes in the event of sudden air loss. It comes supplied with mounting hardware and air lines to fit most road machines, including Harley, BMW and Japanese bikes. A gauge and "on-board" air filler system are optional. Catalog, ordering information and a complete shock selection guide are available at no charge.



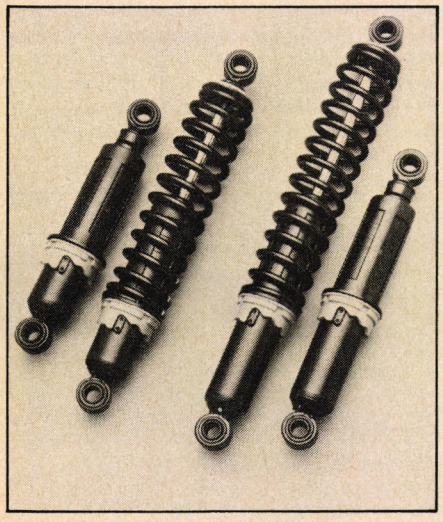
Reeder Corporation
196 Victor
Detroit, Michigan 48203

Gaspring ST-160 air-adjustable system pictured. Features: air-adjustable, nitrogen-pressure design, hard-chromed piston rod, urethane oil seals, leak-proof fittings and a large-volume air chamber. The unit includes thermostatically controlled bi-directional valving, 160-psi rating. It is heliarc-welded and available only in a chromed finish. The package includes air line, air valve, gauge unit and all necessary hardware. Brochure available without charge.



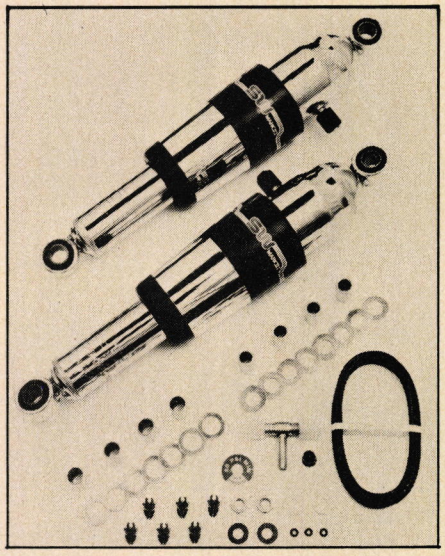
S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681

D-series pictured. Features: These shocks are designed as light-duty original-replacement shocks. They include six-stage damping control on compression and rebound, and a full range of optional spring rates are available. The D-series comes with a preload cam, spring keepers, adjustment spanner wrench and a full set of bushings to fit most bikes. Instructions are included and a one-year warranty against defects is available when the shocks are used according to the manufacturer's recommendations. For your copy of the S&W catalog, see your dealer or contact S&W directly.



S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681

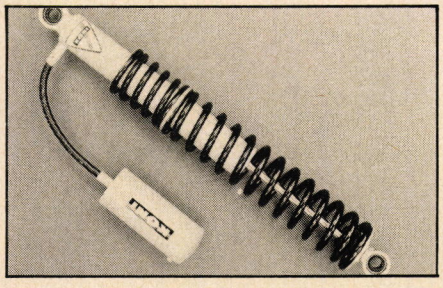
H-series pictured. Features: Designed for heavy-duty applications where aeration is a problem, S&W's H-series includes a freon gas cell, six-stage damping control on compression and rebound, a 0.50-inch chrome-plated main shaft with a triple-lip shaft seal and double-reinforced welded shock eyes. These shocks come with 10-, 12- and 14mm bushings and a spring-cam spanner wrench. A selection of mutiple- and straight-rate springs is available for most applications; chromed springs also are offered. Instructions are included and a one-year warranty against defects is available when shocks are used according to the manufacturer's recommendations. See your dealer or contact S&W directly for a catalog.



S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681

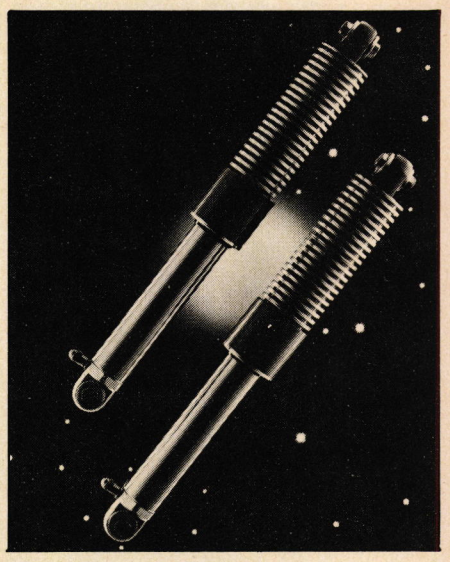
Mark III air shock pictured. Features: an all-metal body in black or chrome and a reflective 3M decal. These shocks are available for most touring bikes. The FL-series is for use on Harley-Davidsons; AT-20 can be used on CBX and CB750 Hondas. Also included are the air line, air valve, 10-, 12- and 14mm mounting bushings, washers and complete operating instructions. A lifetime warranty is extended to the first owner if all manufacturer's recommendations are followed. For a catalog, see your dealer or contact S&W directly.

Shock Absorbers Dirt Bikes



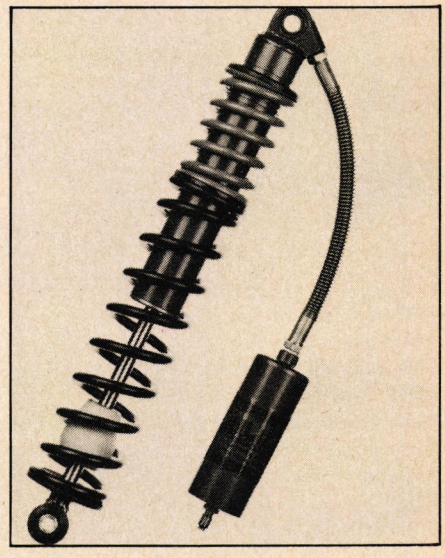
Bikoni Limited
150 Green Street
Hackensack, New Jersey 07601
(201) 489-0404

Koni gas-hydraulic motocross shock pictured. Features: remote reservoirs and tri-rate progressive springs. This shock can be mounted in any position and is rebuildable through a factory reconditioning program. Also included is a two-year warranty against defects in workmanship and materials. Brochure available.



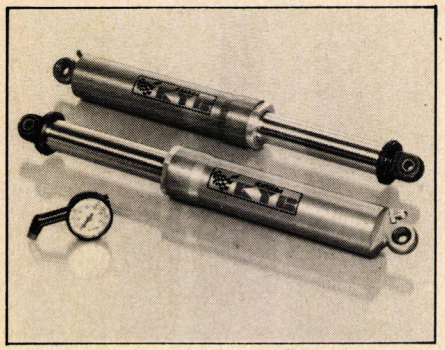
CH Performance Products
18717 Parthenia#11
Northridge, California 91311
(213) 993-3900

Omega air shocks pictured. Features: low-pressure air (70 to 130 psi) spring and oil control damping, aluminum shock body, finned for cooling. These shocks are available in eye-to-eye lengths from 13″ to 17½″ and will fit as replacement shocks for all motocross machines. They may be rebuilt using common hand tools; rebuild kits cost $7.00. Omega air shocks are supplied with 8-, 10-, 12- and 14mm bushings, all necessary hardware and instructions. Brochure available.



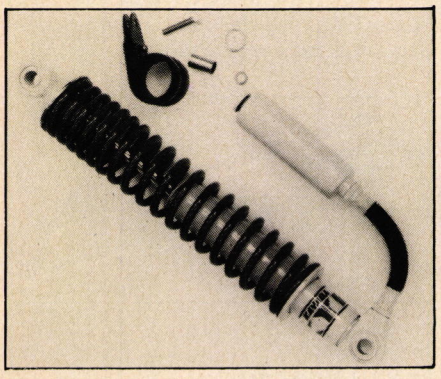
Husqvarna Motorcycle Company, Inc.
4925 Mercury Street
San Diego, California 92111
(714) 565-1414

Ohlins gas shocks with remote reservoirs pictured. (Also available without reservoirs). Features: damping adjustable for low-, medium- and high-speed compression and rebound stroke, wide range of optional dual spring rates and foam bump rubbers to prevent bottoming. The body is constructed of steel. These shocks are available as bolt-on replacements for 77–80 Husqvarna, 77–79 Maico Magnums, 77–79 RM Suzukis, 78–79 Honda CR, KX Kawasakis, 78–79 Can-Am MX, and KTM MX and enduro models. They can be rebuilt, but special tools are required and available at dealers. A factory rebuild program is offered. All mounting hardware is included, as is a manufacturer's warranty against defects in workmanship. A catalog of Husky products is available.



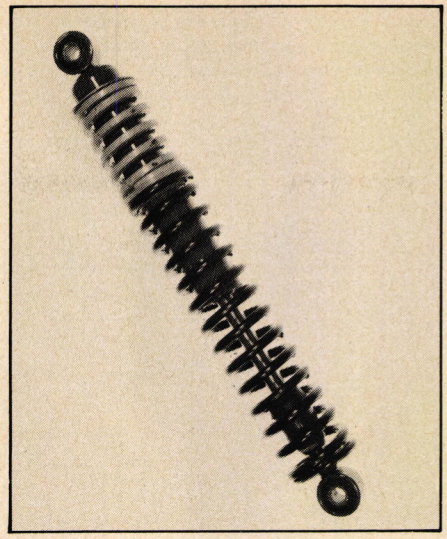
Kayaba Industry Company
3913 W. Segerstrom Avenue
Santa Ana, California 92704
(714) 540-4445

KYB F-series oil/air shock pictured. Features: air-adjustable with oil support, three rebound damping settings and flexible Heim joint at upper mounting eye. Gold anodized aluminum body. KYB "F" series shocks are rebuildable and are available in lengths of 15.5", 16.7" and 17.5" for Suzuki RM 78–79, and Honda CR 78–79. The shock comes complete with air gauge, mounting hardware and installation instructions. Brochure available.



Kayaba Industry Company
3913 W. Segerstrom Avenue
Santa Ana, California 92704
(714) 540-4445

KYB M-series oil/gas shock with remote reservoir pictured. Features: designed for RM80, Honda XR75, XR80, and Kawasaki KX80. There are two rebound damping adjustments, three spring preload settings and 4¼ inches of stroke. Complete with all mounting hardware and operator's manual. Brochure available.

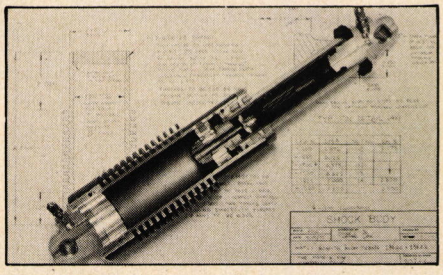


Lucas Industries
5500 New King Street
Troy, Michigan 48098

Girling gas shock pictured. Features: "floating shim" damping valve, ½"-diameter piston rod and a controlled nitrogen and oil system. A dual-spring design of various spring weights is optional. Catalog available, $1.00.

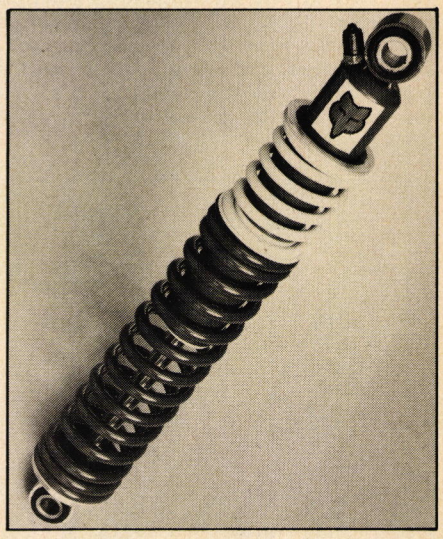
Lucas Industries
5500 New King Street
Troy, Michigan 48098

Girling remote-reservoir gas shocks pictured. Features: oil and gas damping, remote reservoir, dual springs (optional), steel body and neoprene high-pressure oil line. It's available in lengths of 12.8", 13.4", 14.2" and 15". Brochure available.



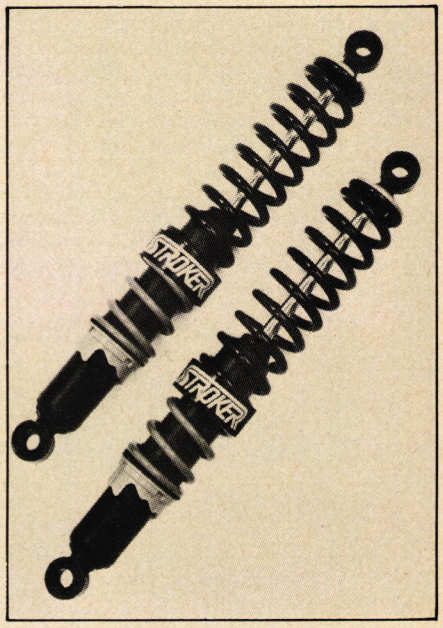
Moto-X Fox
520 McGlincy Lane
Campbell, California 95008
(408) 371-1221

Airshox pictured. Features: dual-stage adjustable air-spring rates for ease in tuning to individual requirements, rebuildable construction for replacement of worn parts, aluminum body with integral finned cooling and available in eye-to-eye lengths of 13.5 to 17.55 inches. This model will serve as a bolt-on replacement for production MX-bike shocks. Owner's manual included; catalog available for $3.00.



Moto-X Fox
520 McGlincy Lane
Campbell, California 95008
(408) 371-1221

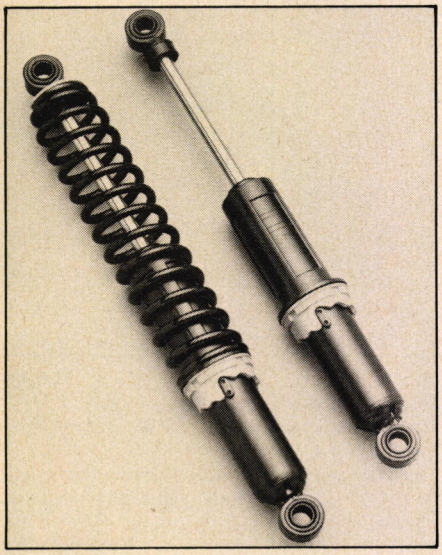
Fox Shox pictured. Features: bronze piston and bearing, ½-inch-diameter shaft (hardened and chrome-plated), Teflon piston ring, polyurethane shaft seal and tunable damping. This model is available in lengths from 13 to 17½ inches. These shocks are rebuildable and have a large selection of optional springs. Remote reservoirs also are available. Shox include spring retainers, 10-, 12- and 14mm bushings and an owner's manual. A catalog is available for $3.00.



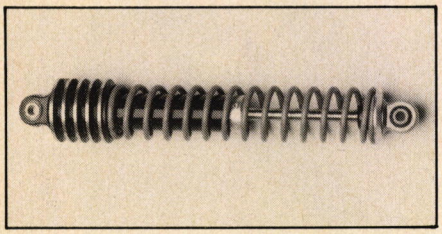
S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681

FE Stroker pictured. Features: velocity-sensitive three-stage damping control and dual

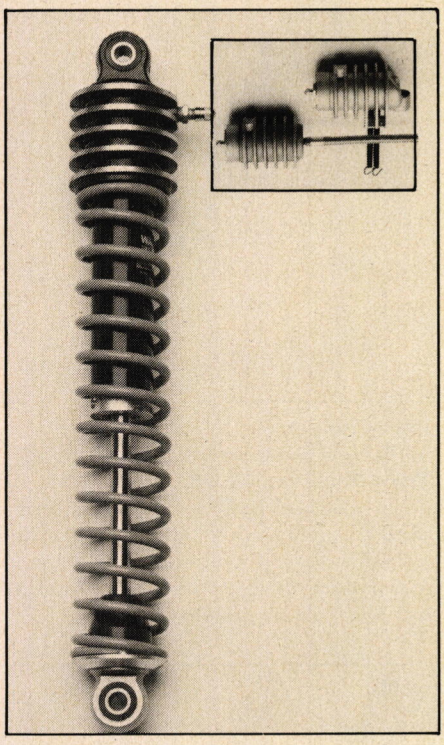
springs with different rates for all MX machines. These shocks come in six lengths from 14 to 18¼ inches. A street Stroker is available with dual springs, chromed shock body and optional chromed springs. It provides light springing for average street use and heavy springing for more demanding street applications. Both Stroker series include operating instructions, 10-, 12- and 14mm bushings and a cam spanner wrench. A one-year warranty against defects when used according to the manufacturer's recommendations also is included. For a catalog, see your dealer or contact S&W directly.



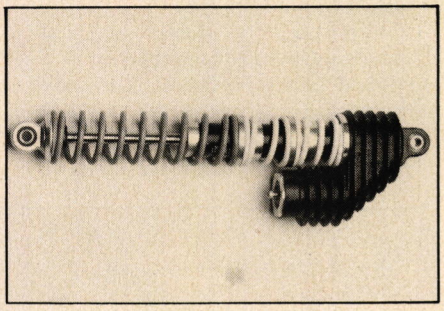
S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681
L-series pictured. Features: light damping control for riders under 140 pounds, long travel for laid-down mounting and a full selection of optional springs in multiple and straight rates. Mounting hardware is supplied, including a spring-cam adjustment spanner wrench and instructions. A one-year warranty against defects is available when used according to the manufacturer's recommendations. For your catalog, see your dealer or contact S&W directly.
NOTE: LL-series shocks also are available. They include the same features as the L-series but have medium damping for riders over 140 pounds. These are recommended for four-stroke singles or heavy off-road bikes.



Works Performance Products
20970 Knapp Street
Chatsworth, California 91311
(213) 998-1977
Original model pictured. Features: progressive valving action, steel pressure cylinder, ½-inch stainless steel shaft, Kal Gard protective finish and shot-peened chromed springs. This shock is fully rebuildable; a factory reconditioning program is offered. Damping is tunable to individual rider requirements. This model fits most bikes with shock eye-to-eye sizes from 11¾- to 18¼ inches. A catalog is available at no charge.

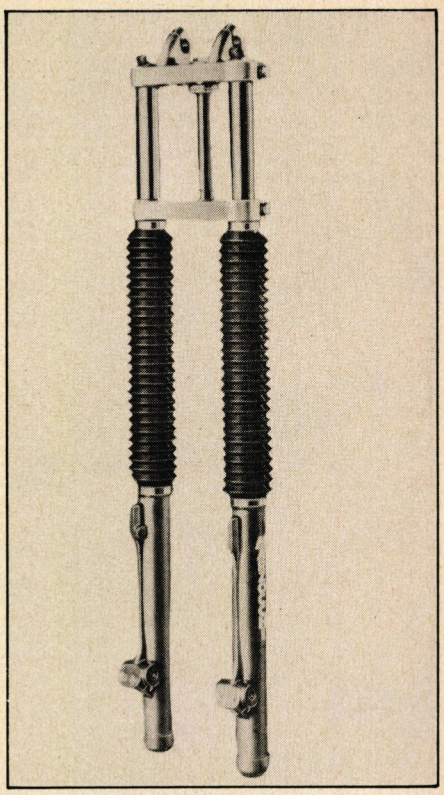


Works Performance Products
20970 Knapp Street
Chatsworth, California 91311
(213) 998-1977
The Gasser pictured. Features: nitrogen-charged oil damping system, aluminum cooling fins on shock body, steel pressure cylinder, Kal Gard finish, ½-inch stainless steel shaft, progressive valving and shot-peened chromed springs. This model is available in eye-to-eye lengths of 11¾ to 18¼ inches. It is rebuildable with factory reconditioning and tuning available. Remote reservoirs are offered (see inset) to give additional travel and increased oil capacity. A catalog is available at no charge.

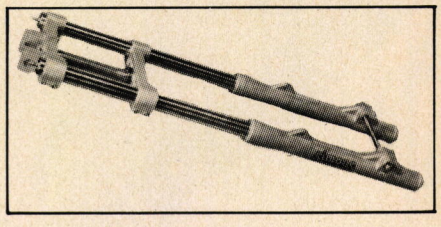


Works Performance Products
20970 Knapp Street
Chatsworth, California 91311
(213) 998-1977
The Supercrosser pictured. Features: progressive damping with three separate adjustments, finned mono-block design for increased oil capacity and cooling, nitrogen bladder system to prevent aeration, 220,000-psi yield-strength steel shaft and compound dual- or triple-rate springs. This model is tunable and rebuildable. It comes in 13¼ to 18¼-inch eye-to-eye lengths. A catalog is available at no charge.

Forks



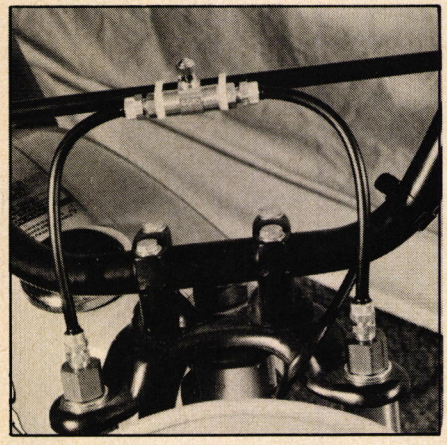
Cosmopolitan Motors Inc.
Jacksonville & Meadowbrook Roads
Hatboro, Pennsylvania 19040
Marzocchi forks pictured. Features: available with aluminum or magnesium sliders, forward- or standard-mount axles, and capacity for damping adjustment. Travel stroke is 8.67" and forks are completely rebuildable. Designed for MX machines; KX Kawasaki, RM Suzuki, YZ Yamaha, Honda CR, KTM/Penton, OSSA, Maico, CZ, Puch, Montesa, Husqvarna and Can-Am. Catalog available.



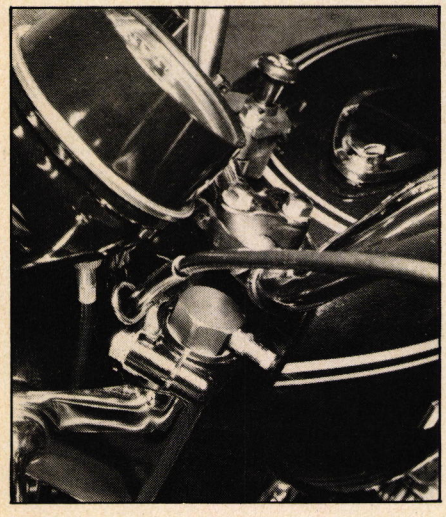
Simons Forks
2626-D Miller Ave.
Mountain View, California 94040
(415) 948-3470
Simons forks pictured. Features: available with 10", 11" and 12" of travel, damping is controlled by a tapered damper rod and the forks require no modifications when used on late-model motocross bikes from Suzuki, Husky, Can-Am, Honda and Yamaha. Fork tubes are 1.5" in diameter and are made of heat-treated chromoly steel. The triple clamps are forged aluminum alloy. Air is used to supplement the

"soft" coil springs for a dual-rate effect. Simons forks feature a leading axle and it, too, is constructed of 4130 heat-treated chromoly steel. All parts and hardware for installation are included. A brochure is available, catalog costs $1.00.

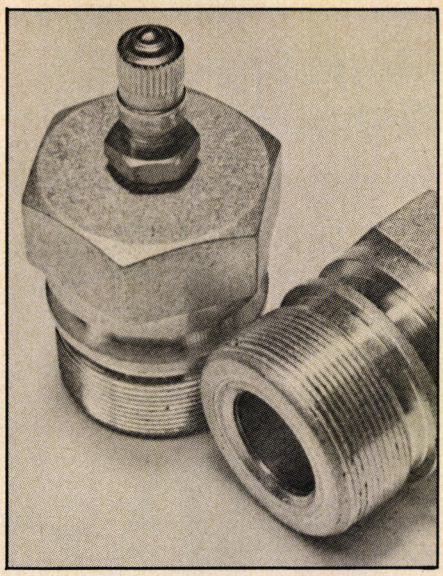
Fork Caps



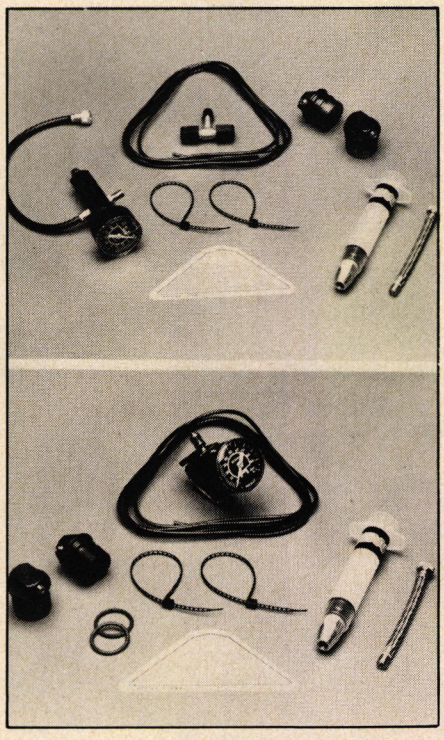
Goki Manufacturing Company
9525 Cozycraft Ave., Unit F
Chatsworth, California 91311
(213) 998-0852
Goki equal-fill system pictured. Features: designed to bridge air-cap systems for equal air pressure. This system will work with OEM fork caps or aftermarket units. The package includes brass fittings, neoprene air line, and is supplied with all necessary instructions and hardware. Brochure available.



Goki Manufacturing Company
9525 Cozycraft Ave. Unit F
Chatsworth, California 91311
(213) 998-0852
Goki Air/Oil Fork Kit pictured. Features: designed to work with existing coil springs. No modifications are necessary to fit this kit to most Japanese street and dirt bikes Marzocchi, Ceriani or Betor forks. The kit supplies all necessary hardware and instructions. Brochure available.

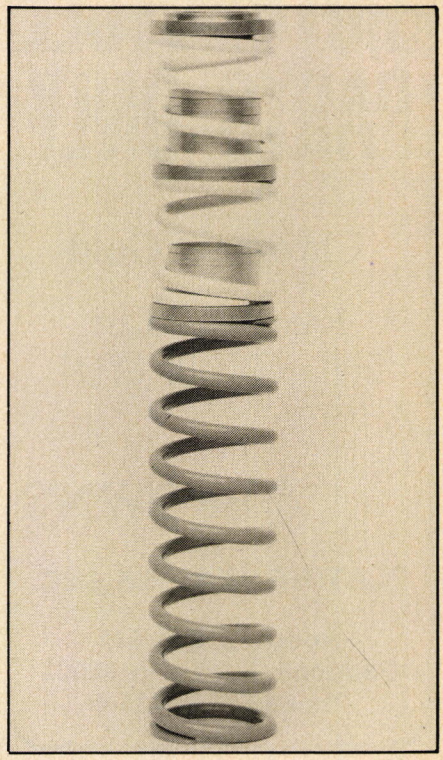


Pro-Tec, Inc.
282 Gemini
Brea, California 92621
(714) 738-0631
Pro-Tec air-fork caps pictured. The caps allow an air/oil combination to be used for tunability and additional load-carrying capacity. Sizes are available for most dirt and street bikes. A brochure is available.



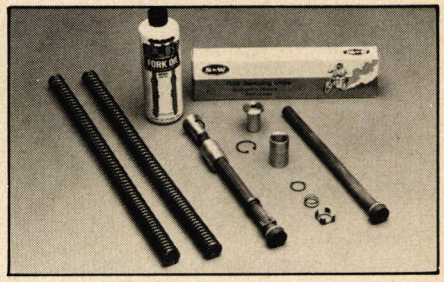
S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681
Air Boost fork caps pictured. Features: air caps, gauge, air line and mini-pump. This kit is designed to supplement springs or aid in supporting an accessory-laden front end. It's available for both street and dirt bikes. A full S&W warranty offered against defects when used according to instructions is included. Catalog available.

Springs



Works Performance Products
20970 Knapp Street
Chatsworth, California 91311
(213) 998-1977
Triple-rate springs pictured. Features: may be used on Works shocks measuring 16 inches or longer. The short spring acts as a movable stop, with the intermediate coil included for normal conditions. The heavy spring handles demanding dirt applications. A catalog is available from your dealer.

Damper Rods



S&W Engineered Products
2617 W. Woodland Drive
Anaheim, California 92801
(714) 527-1681
Fork springs and damping rod pictured. Features both straight-rate and multi-rate springs; may be purchased separately or with special damping rods. Call S&W for application and/or catalog, or see your dealer.

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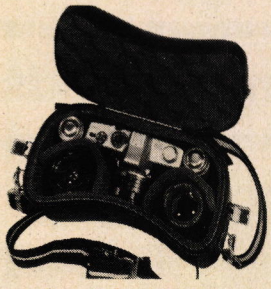

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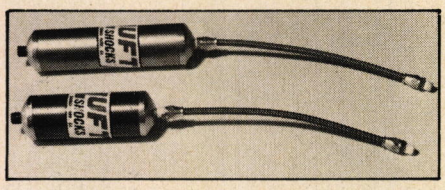
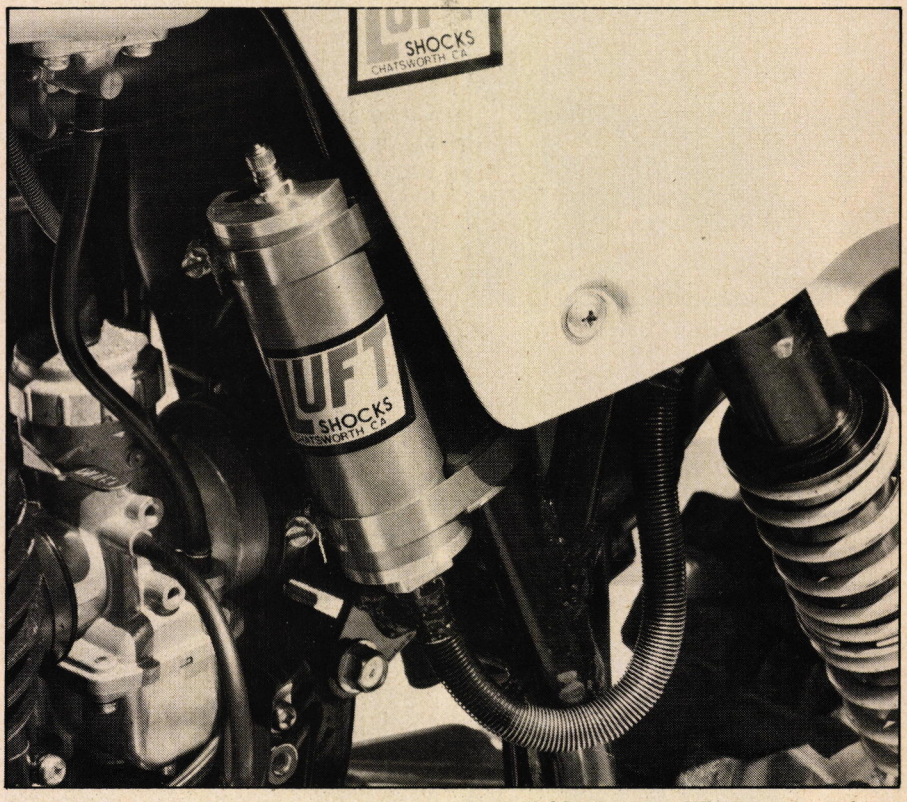
PARAMOUNT, CA. 90223
Dealer Inquiries Invited

Monoshock Rebuild Kits



Luft Racing
9601 Owensmouth #28
Chatsworth, California 91311
(213) 341-0448

Replacement monoshock reservoir, standard and super pro, pictured. Features: additional oil capacity over stock (90 percent increase claimed), additional cooling and valving changes for damping control. Standard and pro models are constructed of 6061 aluminum (pro model is 2″ longer than standard model) and are supplied with stainless steel braided hose. This shock must be sent to Luft for reservoir installation; a turn-around time of 24 hours is guaranteed. Catalog available, $1.00.



Luft Racing
9601 Owensmouth #28
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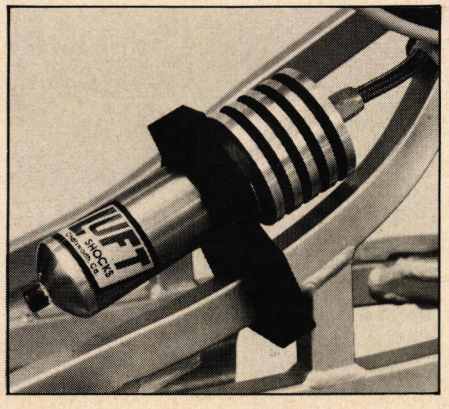
R.T. kit pictured. Features: choice of different travel lengths and special Luft valving. This kit is available for 1979 YZ 125, 250, and 400 shocks only. Reservoir body is constructed of 6061 aluminum and is finned for cooling. Stainless steel braided line is included. The shock must be sent to Luft for reservoir installation; turn-around time is guaranteed within 24 hours. Catalog available, $1.00.



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Suzuki/Kawasaki remote reservoir rebuild kit pictured. Features: designed for rebuilding stock KYB remote reservoirs, allows increase in shock oil capacity, adjustable nitrogen and oil pressure, and floating piston is machined from aluminum. Reservoir body is blue-anodized and constructed from 6061 T-6 aluminum. Kit includes all mounting instructions, damping adjustment specifications and enough shock oil for one rebuild. Catalog available, $1.00.

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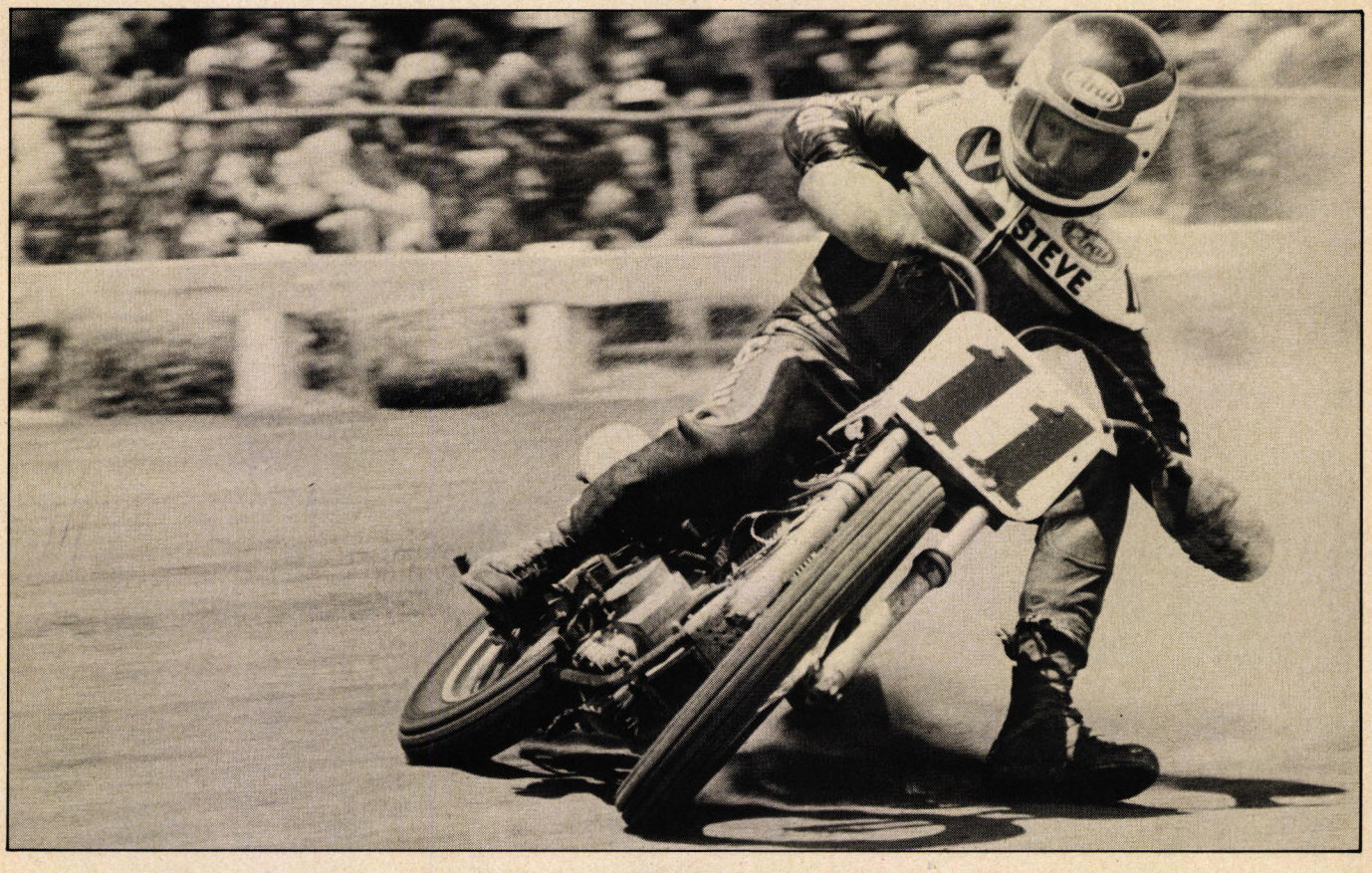
EDITED BY MICHAEL JORDAN

Winners & Losers 1979

"Stay Hungry" was Steve Eklund's motto in the chase for the AMA Grand National Championship.



ROBERT HARMEYER JR.

• You didn't have to look past Steve Eklund's number plate to figure out how serious he was about finally taking the AMA Grand National Championship away from Jay Springsteen—anyone sporting a double No. 1 on his number plate *must* be riding with the bit in his teeth. And this year Eklund glowered behind his scraggly midseason beard more than ever.

Eklund started off 1979 with a string of successes, then clung to his lead with front-running placings—just as he did in 1978. And with two race bikes in his van instead of just one, Eklund's chances of finishing up front in each race were improved. Also, he had discarded any notion of running the Grand National roadraces, for last year his Yamaha TZ750 not only spooked him thoroughly, it injured him as well.

PATRICK BEHAR

Consistency and Eklund's own peculiar brand of tenacity make the difference for National No. 11, as anyone who saw him barge into the final turn at last spring's San Jose Mile—banging handlebars with Keener and Scott and then taking the win from Ricky Graham—could attest. Strangely enough, Eklund clinched the title at the fall San Jose Mile, but not by winning the race. He didn't even qualify for the main event, though he was on home ground. Springsteen's poor finish in that event guaranteed Eklund the title, and a freshly-shaven Steve Eklund took to the victory rostrum after the race with a smile on his face and a number plate in his hand with only one No. 1 inscribed on it.

Springsteen lost his chance for a fourth con-

Continued

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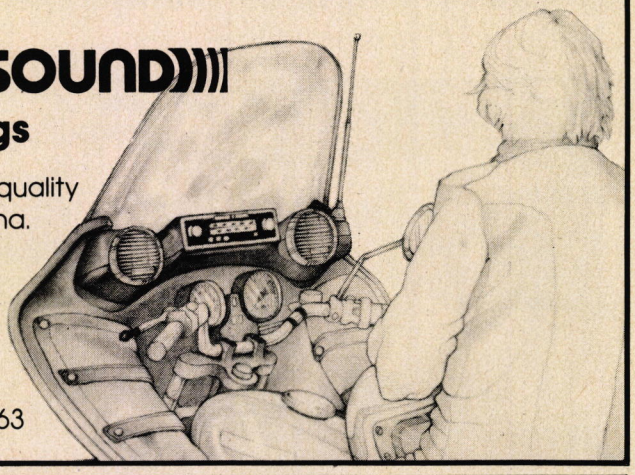

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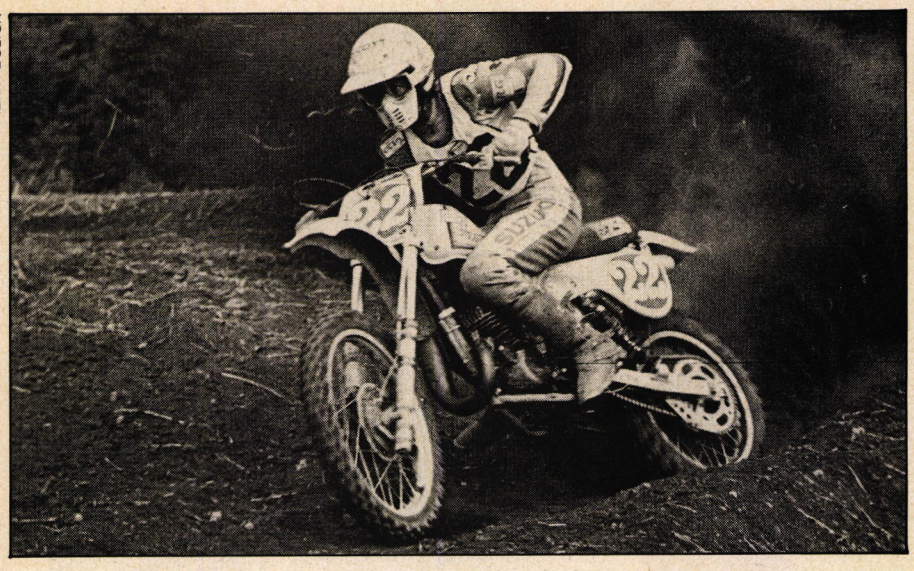
RIDER VOTE

secutive championship in part because he failed to score points early in the season. That happened last year, too. But this time a still-unidentified intestinal ailment was the cause. Battling nausea and ill health for much of the season, Springsteen couldn't put together the late-season charge that had held him in good stead in past years. In addition, riders like Goss, Morehead and Parker pushed Springsteen back in the standings with victory-circle rides.

The season ended with Eklund seizing the No. 1 plate and Springsteen assuming Gary Nixon's old No. 9. Like Nixon, Springer is the premier flattrack talent of his day, as anyone who has seen him running high and loose on the cushion will tell you. But Eklund is mean and hungry, and while the way he likes to muscle his Harley low on the track may not look stylish, it gets the job done. —*Michael Jordan*

HENRY BOLTON



If You're Riding a Yamaha, Don't Look Back

A Suzuki might be gaining.

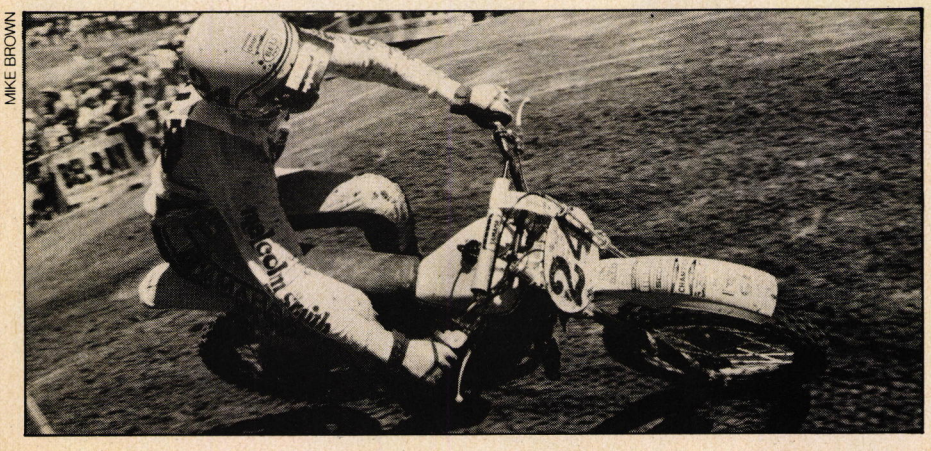
• Once again this year Yamaha took home most of the marbles in American motocross. Broc Glover earned the 125cc championship, while Bob Hannah predictably took home the hardware in Stadiumcross and 250cc National competition. Suzuki had only one championship to its credit when Danny LaPorte finally fulfilled his promise by garnering the Open-class National championship. Even so, Suzuki came out a big winner in U.S. motocross, largely because it stole a few crucial headlines from Team Yamaha and because the marbles it took home were important ones.

Whenever Glover looked over his shoulder, Mark Barnett and Brian Myerscough were right there—and sometimes they were gaining on him. Barnett started the season slowly, but got credit for the overall win at the 125cc USGP (although Glover had the same point score) and won the Los Angeles Superbowl of Motocross, two very visible events. Meanwhile, Kent Howerton had rediscovered the fire that brought him championship rides with Husqvarna. When Hannah made a mistake, Howerton was there to capitalize on it. Howerton also got credit for the 250cc USGP overall win (although Hannah had the same point total) and earned the Trans-USA crown.

Yamaha's Mike Bell probably will not be remembered for his recovery from last year's knee injury, his Stadiumcross win or his stirring and nearly tragic first-moto ride at the Carlsbad 500cc USGP. Instead he'll be the guy who fell short by three points of giving Yamaha its second successive sweep of all the U.S. motocross championships. And even more ironically, Bell ended his Open-class National campaign with a win over the champion LaPorte—yet a string of early season DNFs guaranteed that when the final totals were racked up, Bell would be a loser instead of a winner.

—*Michael Jordan*

MIKE BROWN



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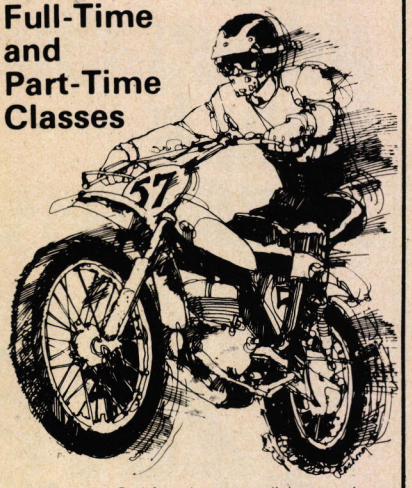

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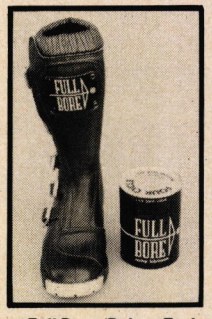

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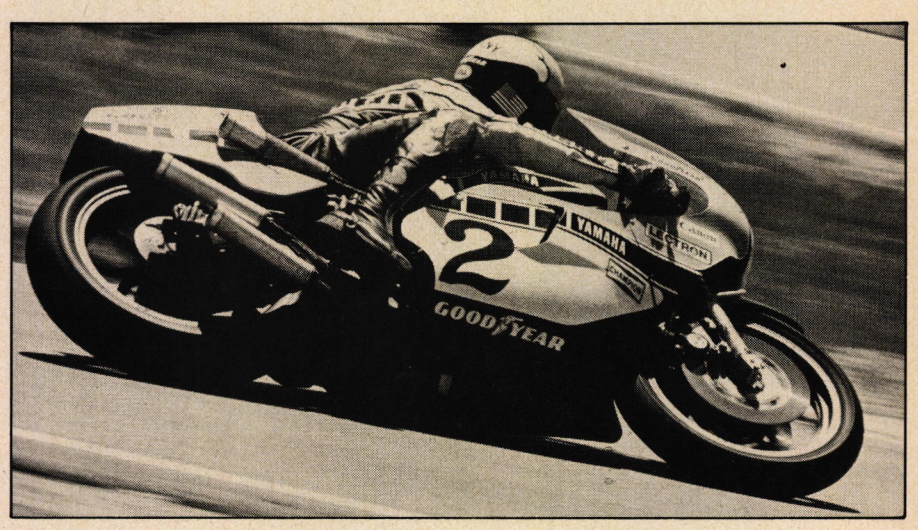
WINNERS & LOSERS 1979:

Roberts Rules

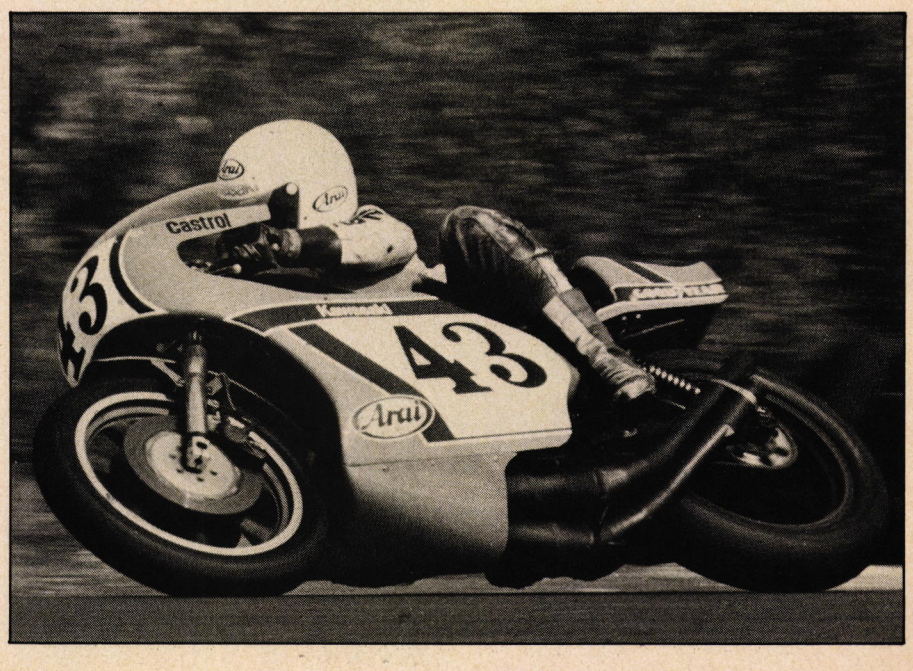
While Mike Baldwin waits his turn.



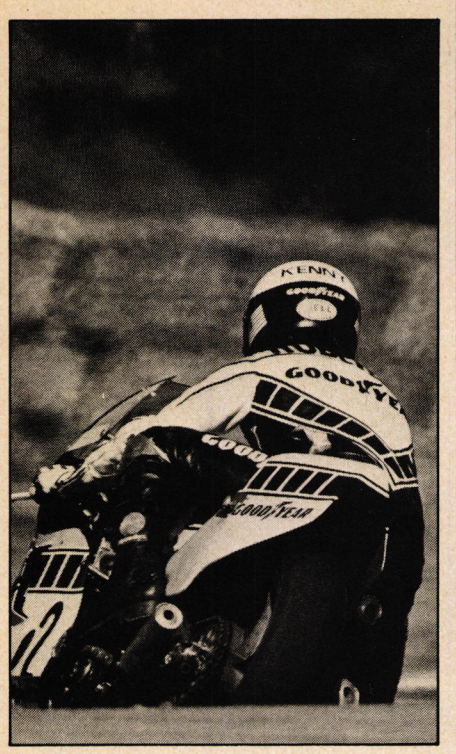
• King Kenny decided he wouldn't bother changing the front tire of his Yamaha YZR500 roadracer before a test session in Japan. As a result, the front end washed out at nearly 100 mph, Roberts backed into some Armco—compressing a vertebrae and rupturing his spleen—and 1978's big winner dubiously looked ahead to the new season. Forced to miss the opening round of the FIM championship and with serious doubts about his physical condition, Roberts' hopes of repeating as 500cc GP World Champion seemed slim.

But nothing holds KR back. Roberts recovered in time for the second event of the season, the Austrian GP, and took his accustomed spot at the summit of the victory rostrum. It wasn't the last time, either, for Roberts put together a consistent string of front-running finishes. Because Suzuki riders Hartog, Ferrari, Sheene and Van Dulmen stole points from each other, and Yamaha International as well as Yamaha USA supported Roberts' effort, King Kenny's road to his second crown almost seemed smoother than last year's.

Mike Baldwin was poised to make a similar ascension to the throne of U.S. roadracing with all of Kawasaki's resources behind him. After he rode the wheels off his antiquated KR750 triple to fourth place at the Daytona 200—despite a serious crash in practice—there was no doubt we were witnessing the bloom of a major roadracing talent. And when Baldwin acquired a ride in the GP championship on a Suzuki RG500, Dale Singleton's lead in the U.S. Roadracing Championship looked precarious in the face of such experience.

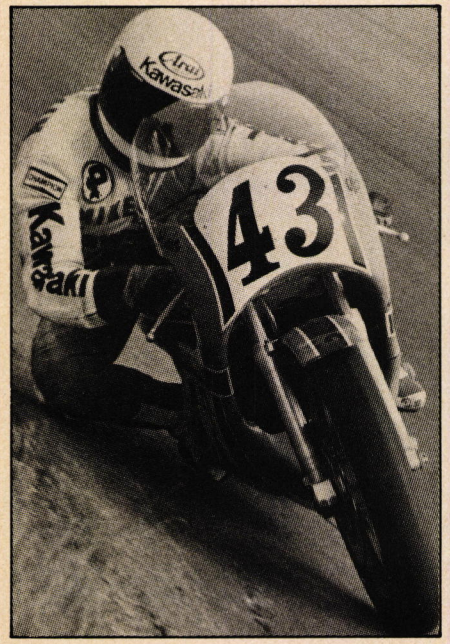


HENRY BOLTON



But veteran racing observers will remind you that there is no more dangerous combination than a talented rider and a motorcycle that is *almost* fast enough. Baldwin had to compensate for the weakness of his KR750 with guts and skill. He got away with it for a while, but at Loudon the inevitable caught up with him. Baldwin pushed the bike faster than it wanted to go, and a casual slide-out on Loudon's slick pavement turned into a vicious high-side that broke up his body.

Considering Skip Aksland's poor season, that Singleton failed to capitalize on his Daytona win and that Richard Schlachter, Baldwin's long-time rival in New England roadracing, eventually took the USRRC, Baldwin's failure earns him the title of 1979's biggest loser in American roadracing. —*Michael Jordan*



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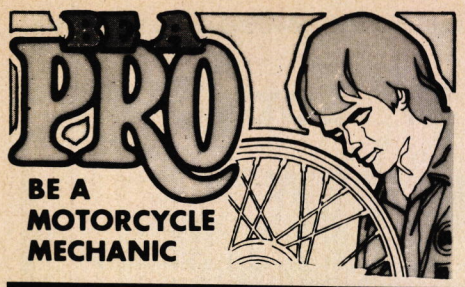

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WINNERS & LOSERS 1979:

Pit Bits

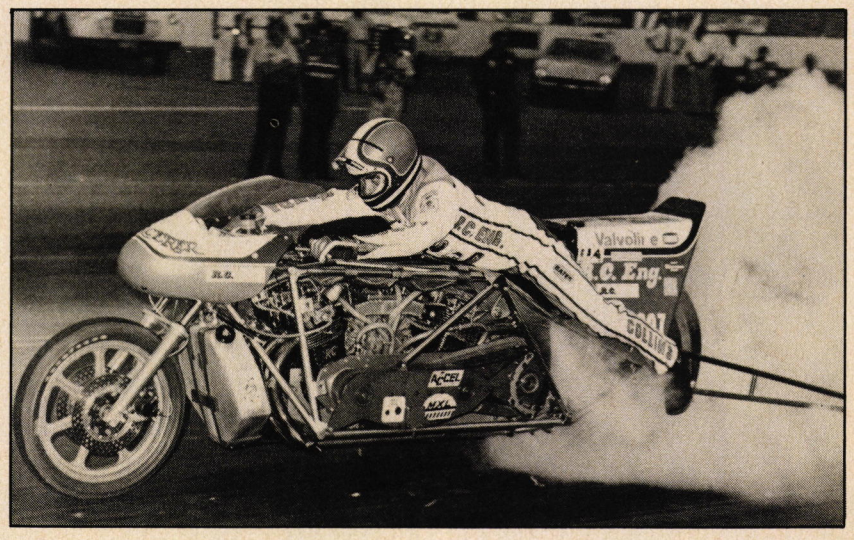
• Skip Aksland began 1979 on the path of success. After Roberts' testing accident, Aksland fell heir to full factory backing at Daytona. In addition, he had supertuner Mert Lawwill to supplement his big-bucks dirttrack sponsorship from PJ1 lubricants. But each successive race seemed to bring new disaster. His Yamaha quit on him a few laps into the 200 and his Harley-Davidson carried him to only one dirttrack win. Aksland lived up to his roadracing reputation by winning the Loudon event, but Rich Schlachter still earned the U.S. roadracing championship. Perhaps only those who aspire to so much can fail so completely.

• Thanks to a third place in speedway's World Final, Scott Autrey ended 1978 as a big winner. But the new year brought him nothing but trouble. He became embroiled in a dispute with the AMA about whether he should qualify for the 1979 World Final on American shorttracks or by virtue of his impressive European record. So Autrey didn't appear in the 1979 World Final. Kelly Moran did, and he recorded a fourth place—then announced plans for a European career like Autrey, which seemed to set the scene for yet another dispute with the AMA.

• Chuck Sun went to Europe this year with a Husqvarna contract for 500cc GP motocross and immediately lost the luck that carried him to his successful 1978 U.S. season. First he broke a wrist before the GP season began. Then the new and explosive 420cc Husky (equipped with 250-size flywheels) proved nearly unridable in his weakened physical condition. Shortly after riding a Husky 390 prepared by his old friend Eric Crippa to the top placing by an American at the Carlsbad USGP, Sun injured his knee in an accident unrelated to racing. At the end of 1979, America's hardest-working motocross rider was struggling to recover his form in the Trans-USA.

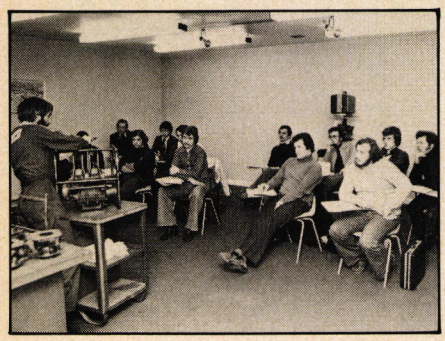
• Russ Collins closed out 1978—and supposedly his career—with a 199.95-mph pass through the Ontario lights on his double-engine Honda Top Fuel dragbike. In hopes of becoming the first man on a motorcycle to crack 200 mph in the quarter-mile, he returned The Sorcerer to action for the 1979 Ontario meet. Ironically, Collins managed only 195.22 mph in the first round and then was eliminated by Pee Wee Gleason on a much slower Kawasaki turbo. Collins recorded a trap speed of 191.48 mph compared to Gleason's 165.74 figure, and it took Pee Wee 8.42 seconds to get there, while Russ clocked 8.11 seconds. But in dragracing, it's not how fast you go, but how soon you get there that counts. And Gleason broke the lights before Collins did.

• Honda's radical NR500 four-stroke roadracer was both a winner and a loser. It was wildly successful in the way it monopolized headlines as the press awaited its release—and it was an unmitigated disaster on the racetrack. At the bike's first race, Katayama spilled oil in the first corner and teammate Grant fell down in it moments later, his bike catching fire in the process. Neither of the bikes qualified for the French GP, the final race of the season. Both Hondas lined up on the grid as reserves, however, hoping that a bike would fail at the start line and allow the Hondas in the race. But once the field had fired up and rolled away on the warm-up lap, the two most sophisticated four-stroke roadracers ever built were chased ignominiously from the grid by race officials. •



Suzuki RG500 Teach-Ins

Short-cut to square-four mastery.



• The racing world was amazed in 1976 when Suzuki released a limited number of replicas of its water-cooled 500cc GP roadracer. Yamaha had sold bikes for the 250cc and 750cc classes, of course, but never before had a factory provided a 500cc GP motorcycle—the aristocrat of the breed—for general consumption.

Since only a limited number of RG500s were made available, and to insure that the few riders who were blessed with the machine actually finished races on the fickle and then-unknown bike, Suzuki of Great Britain inaugurated a unique and unprecedented venture—the training of would-be RG tuners and spannermen. This policy paid off in handsome advertising dividends during the four years Suzuki has garnered the 500cc World Manufacturer's Championship, even though RGs have never been available in TZ750-like volumes.

Martin Ogbourne, Suzuki GB's chief mechanic and the man behind Barry Sheene's world championships in 1976 and 1977, is the man responsible, for it is he who conducted the RG500 seminars in Suzuki GB's training facility just along the corridor from the race shop. Ogbourne is widely accepted as the world's foremost non-Japanese expert on the Suzuki square-four engine, for he has been involved with the factory XR (for Experimental Racer) hardware since its introduction in 1974. Ogbourne knows the square-four engine inside and out. And even though there are some marked differences between the factory XRs and privateer RGs, the two are intimately related. The MK I through MK III RG500s were based on the 1975 XR11, while the latest MK IV bears a more-than-passing resemblance to Sheene's 1977 XR14.

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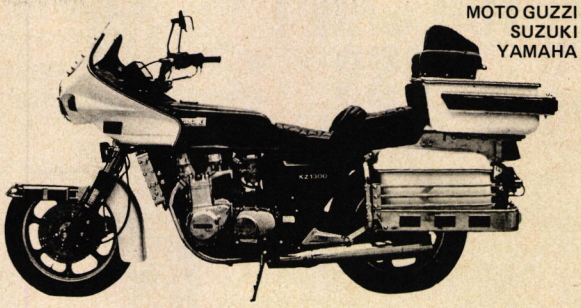

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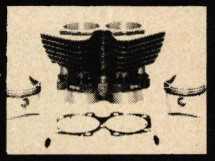

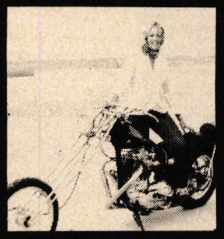

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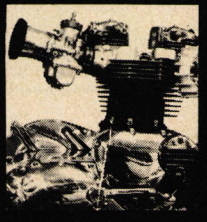

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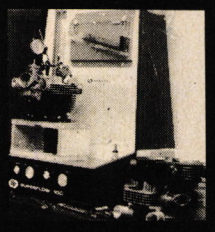

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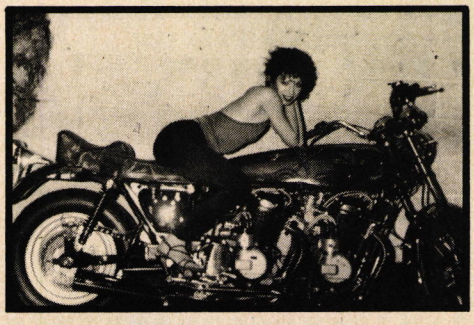

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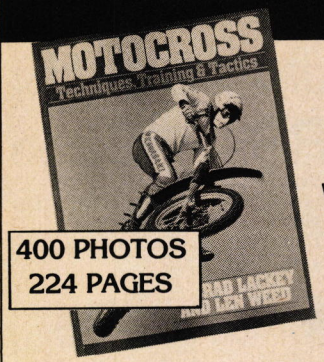

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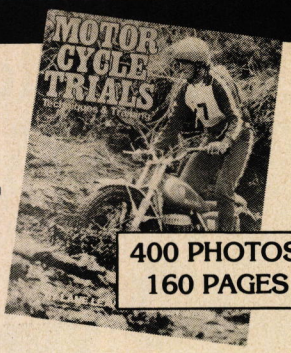

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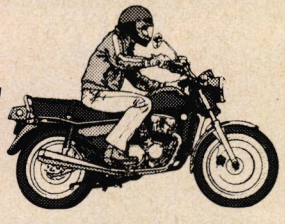

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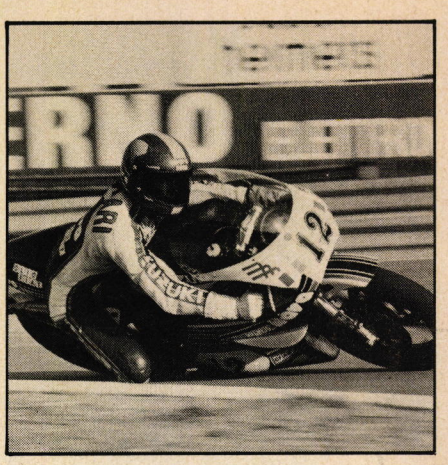
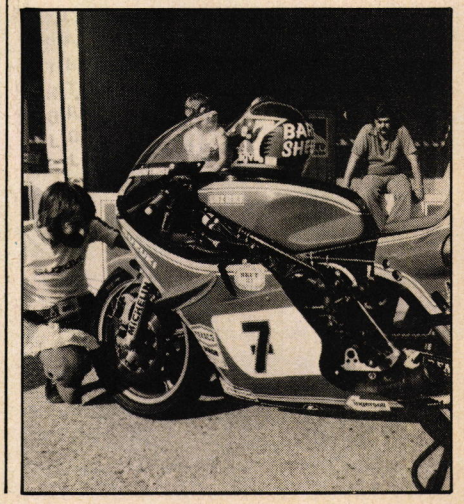


and duration are optimal and that the compression ratio cannot be raised without disastrous and expensive consequences. He knows the factory dyno-tested porting. He knows the quickest RG is a standard RG.

There are some tricks that can be used to improve upon the RG setup, however, and Ogbourne readily provides his insight. He emphasizes that equalizing the compression ratios of all four cylinders using special cylinder base gaskets is crucial to performance. He also explains why ignition components are available only in matched sets, marked with an identification number. And he can tell you when the installation of a fresh crankshaft is prudent. Even the dos and don'ts of suspension calibration to the assorted rim and tire widths available are discussed in detail. Ogbourne tells his students that the mechanic's labor really makes the difference between a privateer bike and a factory bike.

Sadly enough, however, the RG seminars might soon be discontinued as more and more RG500 riders contest the world championship. The sheer number of RG500s on the starting grid suggests that knowledge of the square-four Suzuki has permeated every corner of the paddock. If that's so, a large measure of every RG500 rider's success can be traced to the efforts of Martin Ogbourne and his school for speed. For with the RG500 as with the other bikes in the line, Suzuki likes to guarantee the availability of factory-trained maintenance personnel. *—Alvin Stradler*



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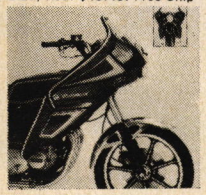

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America's First Dirty World Champion

Bernie Schreiber cleans up his trials act.

ERIC KITCHEN

• When America's Bernie Schreiber first entered world trials competition in 1977, he didn't exactly endear himself to anyone with a humble attitude. After plunging into world competition at the age of 18 and reeling off a fifth, a third, a fifth and a second in successive events, he said, "If I don't win the world championship by the time I'm 22, I'll quit."

Whether or not Schreiber was misquoted really doesn't matter anymore, because last September at the age of 20 he won the World Observed Trials Championship, the youngest rider ever to do so. To win the title, he had to unseat Yrjo Vesterinen, the Finn who had topped the world for the previous three years.

Typically, Schreiber began the year with a DNF and followed it with three indifferent finishes. The DNF had been caused by a crash when Schreiber characteristically banzaiied a sheer rock face rather than circle around it, and the prang bent his forks at full compression. After four events, his overexuberance helped explain why he trailed Vesterinen by 28 points. Yet his confidence remained. "I was thinking that I wasn't as far behind as I was the year before," he recalls. That was true enough, for in 1978 Schreiber trailed Vesterinen by 35 points after three trials, yet still scrambled back to within four points of the top slot before settling for third place.

Once Schreiber began concentrating, he closed on the Finn. His second place in the Italian round near the end of the season moved him into the lead. But he still faced a stern challenge with two rounds in Scandanavia, Vesterinen's turf.

In Sweden, Schreiber managed to do the impossible, beating Ulf Karlson on his home ground, but he slumped to seventh in Finland, cutting his lead to three points with just one round to go. "I was just mentally off in Finland," Schreiber says. "I knew we would be riding in Vesterinen's backyard. You could even see his house from some of the sections. It was like a big psych-out thing. I'd walk a section and as soon as I went to get on my bike some of the Finnish riders would cut into line ahead of me. They were trying to hold me back on time so Vesterinen could catch up."

Schreiber had three weeks to think about the final trial. He ran every day and taught a trials school for Comerfords, the British Bultaco importer. The week before the title showdown he entered a local trial in England. "A little local trial—and I got beat by some kid I had never heard of before. I was trying to do a floater off a tree and I crashed for a five."

Finally, he departed for Czechoslovakia. "I had been upset for two weeks because I got psyched-out in Finland," he recalls ruefully, "but then I really cooled down. I really didn't care when I went to Czechoslovakia. I wasn't worried about anything." It showed too, for in 120 sections he dropped just 13 marks. Second place had 31 points and Vesterinen finished back in fourth.

Schreiber didn't let the championship get him overexcited either. "You don't realize you've won it at first," he says. "Maybe it was because I didn't really have to work at it in Czechoslovakia. It seems like when you win, you win easily. Vesterinen was very friendly. He

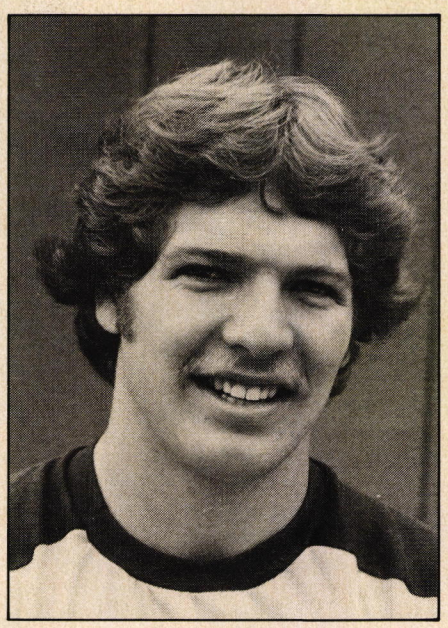
came up and said he thought the best man won this year."

Over the years, Schreiber has sometimes failed to dazzle in what he calls easy or low-point trials. The bolder the challenge, the better his motivational apparatus seems to function. He comments, "I never thought you could show a rider's real ability unless the sections were hard. If I clean it and ten other experts clean it, what does it prove?"

Schreiber's positive reaction to challenges held him in good stead when he began his world championship career in February, 1977. He missed the first two events while awaiting his 18th birthday. "I didn't really know how I would do. I didn't know what I was getting into." Fortunately, his aggressiveness helped him cope with the challenge. "Way back when I started riding I just kept trying different things all the time. After a while, I'd just go out and look for things that were impossible to get up and try them just for fun. That's helped me now because there are no sections that have really scared me."

Schreiber credits sessions spent at Vesterinen's home in the summers of 1977 and 1978 for refining his physical and mental skills. "Staying over and training with Vesterinen helped me a lot. I could see then that it wasn't riding ability that was going to win the world championship. I could see that I could ride as well as he could, but he was smarter, more experienced, better organized. He'd have things all figured out at the beginning of the year. I knew then I had to approach riding with a different attitude."

The sessions at Vesterinen's and three years of world-class sections have had a visible impact on Schreiber's riding style. He has adopted the exaggerated bow-legged riding stance of Vesterinen. He switched back to riding on the outside of his arches from riding on his toes. He slowed down his banzai charges. And he capitalized on his wizardry at slow turns as well as his ability to utilize challenging lines other riders couldn't even see.



Schreiber also credits a week of teaching at Norm Sayler's Donner trials school in Northern California this past summer for renewed confidence and the refinement of his style. "Teaching at Donner helped me more than anything this year," he claims. "Ever since then I've been really confident in my riding. Norm worked with me. It turned out I went to do a trials school for him and ended up being a student."

Now that he's champion, Bernie soon will fly to England to prepare for his title defense. His base will be near Comerfords and he'll work for them as well as organize trials schools and make promotional appearances. He's finally going to take out an English license and compete in national events, where he'll keep his edge facing former world champions like Martin Lampkin and Malcolm Rathmell.

Schreiber is America's first off-road World Champion. He joins roadracer Kenny Roberts (1978–79) and speedway rider Jack Milne (1937) in world-class credentials. The European press no longer regards him simply as a brash young stuntrider, for his love of the sport is genuine—"I'll probably ride as long as I can stay in there, not really for the money, but just to stay in there." Schreiber is far from becoming just another cerebral trials rider. After all, not only did he have the gall to set a deadline for winning the world championship, he had the nerve to live up to it. —*Len Weed*

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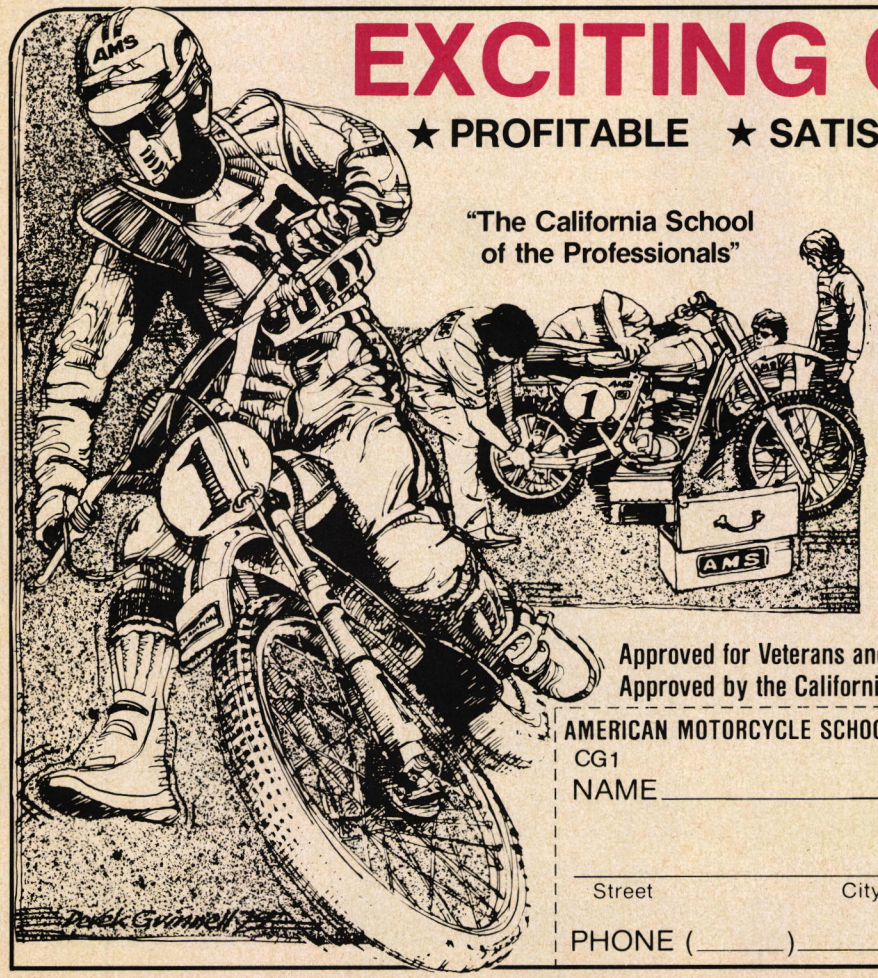

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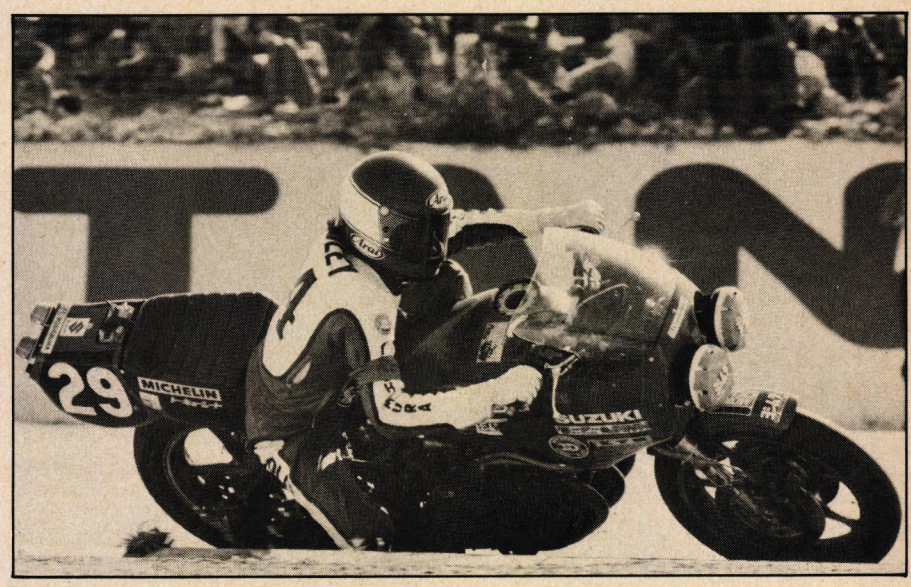


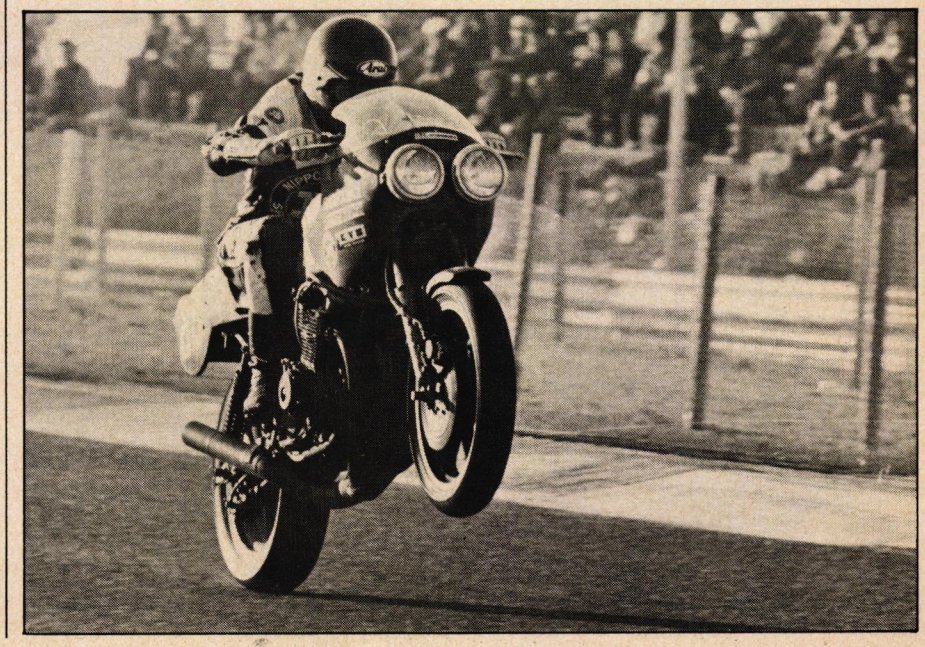
PATRICK BEHAR

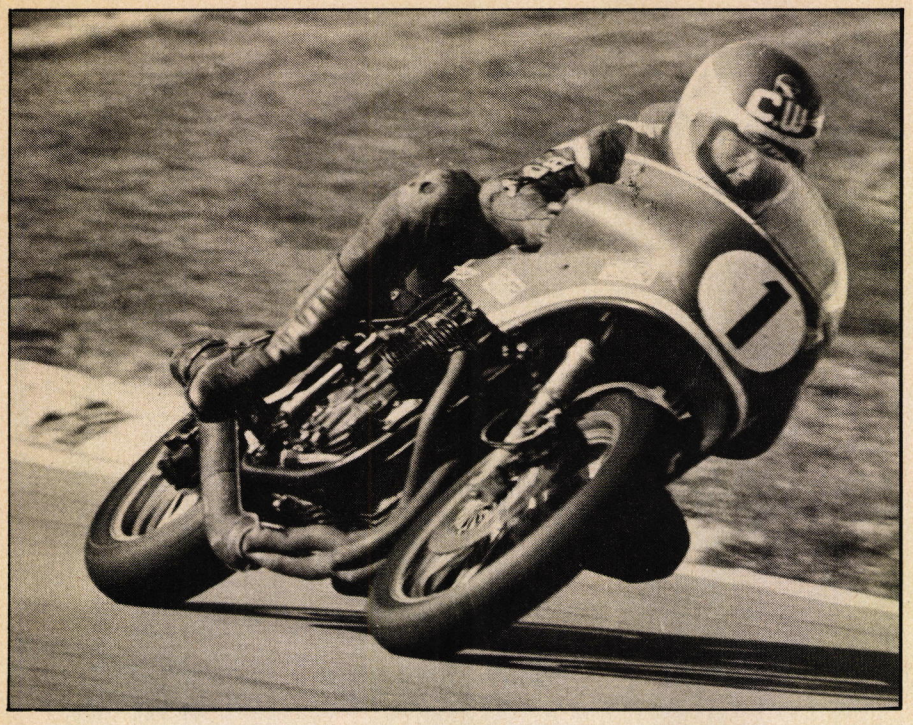
• Americans have proven their world-class roadracing credentials. Two GP world champions and victories in the Anglo-American Match-Race Series provide plenty of evidence. But now American riders have waded into endurance racing. And they're discovering that while banging fairings on the ground and dragging knees might be spectacular, the riding styles required for eight-hour and 24-hour marathons are very different from the funky sprint-race scratching they're accustomed to.

Wes Cooley is in a position to know. As the point man in Yoshimura R&D's bid to wrest the endurance-racing title away from Honda, he's had a chance to inspect the best long-distance riders in the world from a front-row seat. Cooley cites his experience at this year's Le Mans 24-Hour as particularly instructive. "When I was at Le Mans early this year," Cooley notes, "it was pouring rain the first part of the race—not just little drops, but a real deluge. I have raced in the rain before, but never like that, so obviously I wasn't going as fast as the bike or I could have gone. So I had a chance to observe the riders, the other guys who race endurance races on big bikes in terrible conditions all the time.

"Take a guy like Christian Leon on his factory RCB Honda, who has won just about everything in endurance racing. He has a very special style. First, he does not take any chances. That doesn't mean he doesn't go fast—he and Charmain won this race I was in—but he is very careful.

"When I mean he does not take any chances, I think maybe it's because he takes all the chances without making any mistakes. Like, he never or very rarely changes the position of his



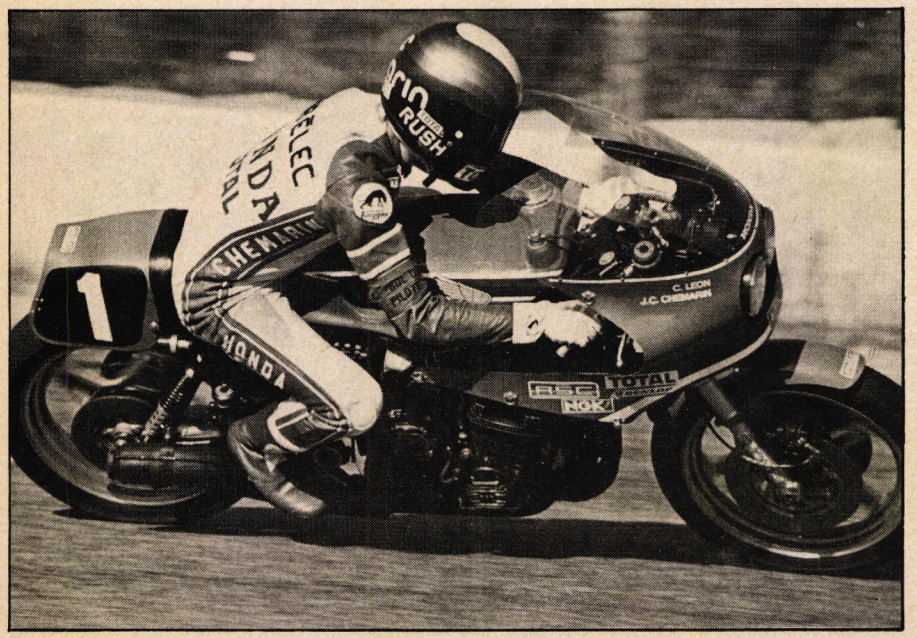


body on the motorcycle. Whether he's riding at 40 mph or 150 mph, the relation between his arms, legs and upper body stays the same always. Because he doesn't move around, he doesn't get fatigued and lose concentration nor do his muscles get tired. And that's very important when you have to race for 24 hours.

"There is no way that you can compare riding in endurance races and riding in a road-race GP. I saw both Leon and Charmain put their foot out going around a slow wet corner, almost like a dirttracker. They seem to be able to control the bike easier that way. And another thing: They are always very easy on acceleration away from a corner. There is no such thing as heavy throttle work."

"All this doesn't seem like much," Cooley continues, "but when you have to race at least 12 of the 24 hours, everything is important. Like because of the rain, I noticed something else. My leathers got wet and my clothes underneath too, so I started to lose my concentration because I was cold and shivering. Those are the things that you have to solve before the race. It's a matter of preparation and that's where you win or lose in endurance racing. And the Honda team is a model of preparation—they never have those kind of problems." Cooley sums up the difference between endurance racing and sprint racing in a way that's hardly new, but nonetheless important just because he's one of the few Americans in a position really to know: "We have the equipment and the men, and the bike Pop built is fast and reliable," Cooley says, "but the Honda team has tons of experience in endurance racing. It'll take a lot more than just fast riding to defeat them."

—Patrick Behar



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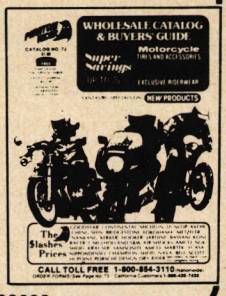

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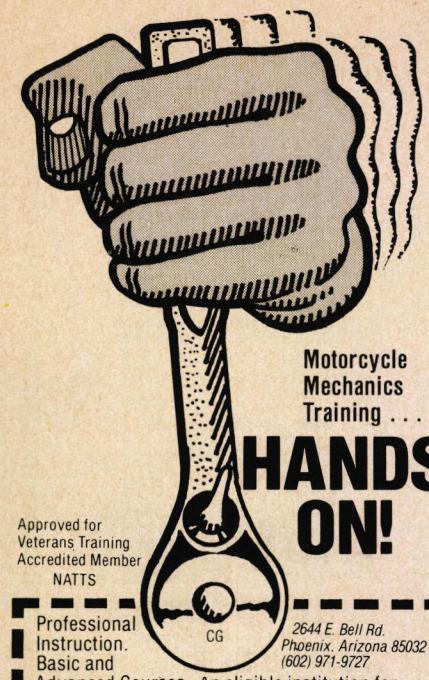

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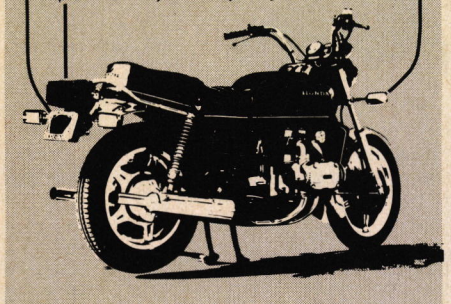

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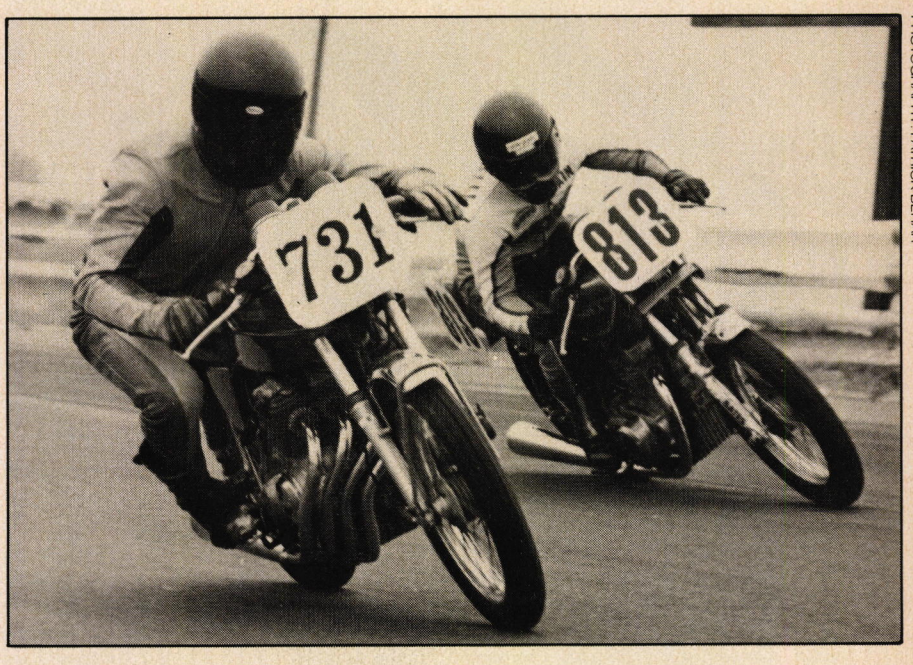
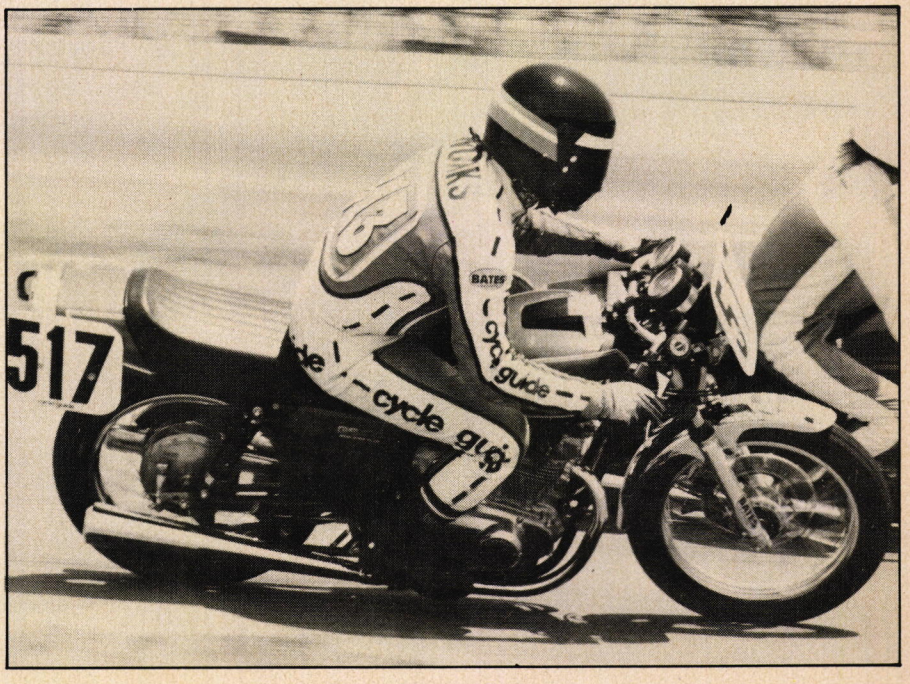


PHOTOGRAPHY: PATRICK BEHAR

• If you don't start on the pole for your race, a large part of your racing strategy consists of figuring out how to pass the guy in front of you. Ideally, passing your competitor should amount simply to motoring around him, displacing him one notch in the race's finishing order; no handlebar-banging should be needed. A clean pass is not only safe racing, it marks you as a good racer.

There are only three places on the racetrack you can use to pass another rider: the straightaway, the exit from and the entrance to a corner. If you confine your passing to these three locations, you stand a better chance of getting ahead in racing.

Passing on a straight is the safest but most deceiving manuever because it looks as if you just need more horsepower than your rival. Yet a good rider can pass on a straight with only an equivalent amount of horsepower and some-



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times with less. He does it by slipstreaming, also called drafting.

Slipstreaming is done by following the rider in front of you very closely, so you take advantage of the hole he punches in the wind. Since his motorcycle has pushed aside the still air for both of you, your bike's engine actually will rev higher than if you were outside the draft. More rpm spells more speed, so by timing your move, you can pull out of the draft at maximum rpm in top gear and overtake him. If the straight is long enough, you actually should pull your opponent along until he repasses you, allowing you once again to take advantage of his draft. When this strategy is used by a couple of experienced racers, it improves lap times for both riders by increasing their terminal velocity on the straightaways. This in turn helps them pull away from the rest of the field. Just think of slipstreaming as free horsepower.

If you can't utilize your opponent's slipstream, you must find another place to pass. That leaves the turns. Passing in a turn is by nature riskier, since you have to commit to what may not be the ideal line through the corner during the pass. So you decide to pass in the turns as a last resort, or if your rival is simply a lot slower through them than you are.

Passing on the exit of a corner means you must begin accelerating before the other guy. Before making a pass here, determine the line the other rider will take through the corner. Then you want to time your peel-off for a later or earlier apex. If you leave the right amount of space between yourself and the other rider, your higher cornering speed (because you were on the gas while he wasn't) will take you right past him on the exit, even though you may not be on the ideal line. Also, you want to pass him either before or after your bike is leaned to the maximum, so if he makes an error and crosses your path, you have enough cornering clearance to take evasive action.

The chanciest place to pass is on the entrance to a turn while braking. It involves braking later, harder and more efficiently than your rival, but this also increases your chances of locking up a tire and falling or simply misjudging the turn completely and overshooting it.

If at all possible, try to outbrake another rider on the inside of his line. Essentially, you will "park" your bike right in his path to the apex. His only alternatives are to ride the outside line through the corner or to follow you through on your line. Just remember that you run the greatest risk of falling while braking, so you should weigh the consequences carefully. In addition, you must remember that since you're both traveling at a fairly reduced rate of speed, you will need a sizable braking advantage to gain any significant ground over another rider.

There are many things that go into racing strategy, but knowing where and when to pass is probably the most important. You don't have to be the leader out of every corner on every lap. You just use your passing techniques to be the leader out of the last corner on the last lap. After all, only the millisecond in which you cross the finish line separates the trophy-winners from the also-rans. —*Dain Gingerelli*

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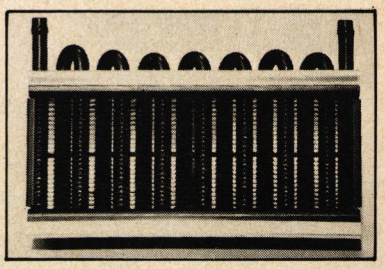

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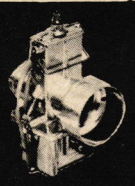

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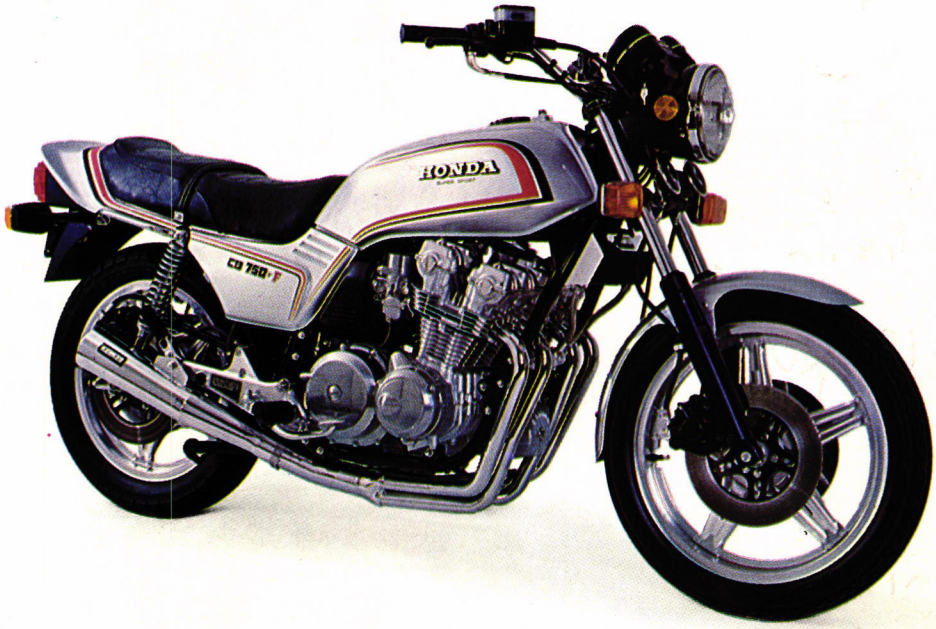

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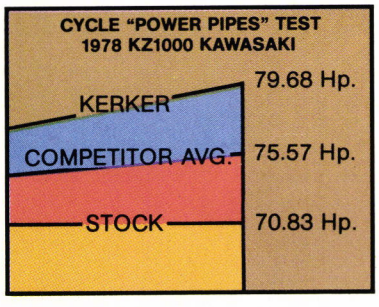

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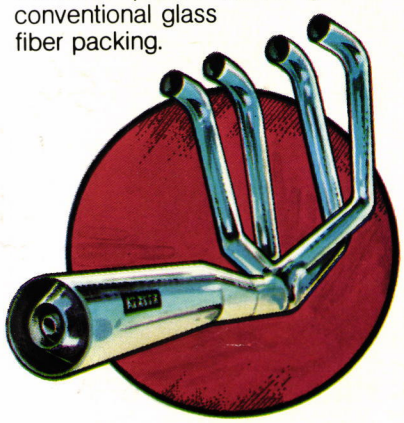

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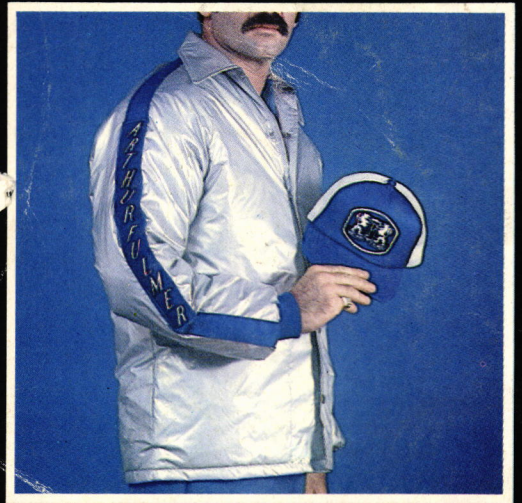

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